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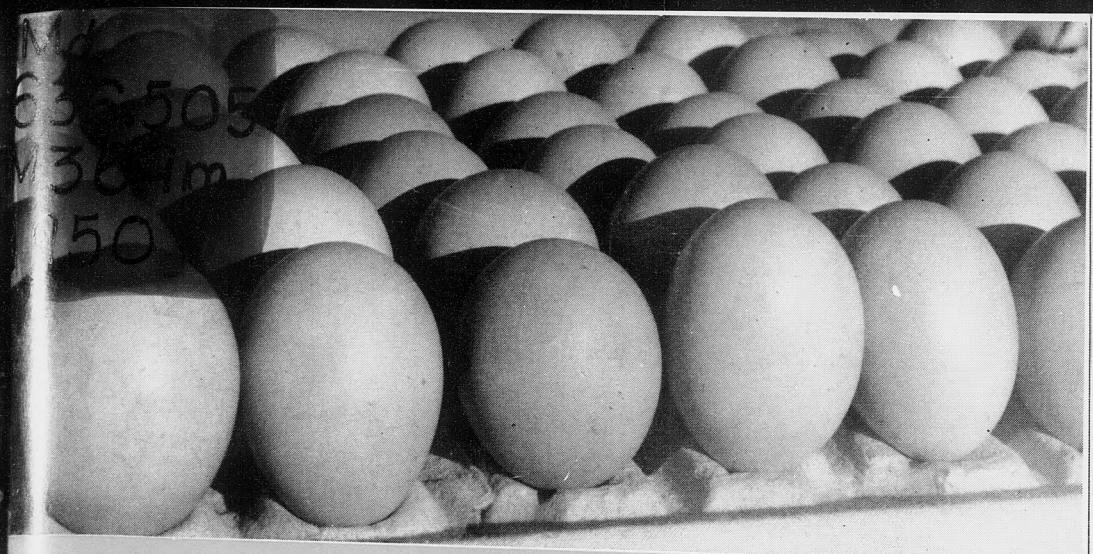
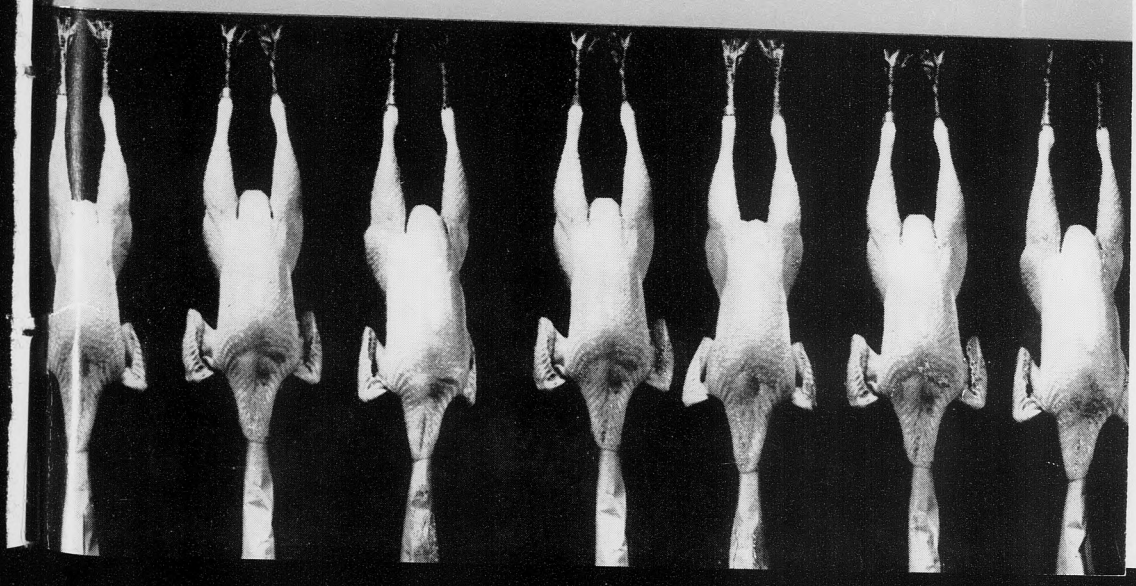


MARYLAND POULTRY YEARBOOK

1950



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MARYLAND POULTRY YEARBOOK 1950

Published by

The Maryland State Poultry Council
as a service to the leading agricultural
industry of the state

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Greetings

to

MARYLAND'S

POULTRY

INDUSTRY

As we enter a new year amid problems of readjustments in our economic structure, we must not lose sight of the many opportunities awaiting our grasp.

To Maryland poultrymen, the fame of Chicken a la Maryland and Maryland Turkey, among gourments throughout our own and foreign lands, offer oustanding opportunities. The vision and ability to develop such advantages require outstanding leadership, careful planning, and much work on the part of the industry.

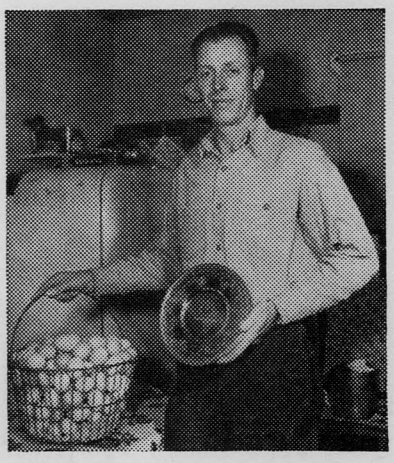
Unless these and other opportunities are fully grapsed, economic and marketing progress in other areas will serve to minimize their potential worth to us.

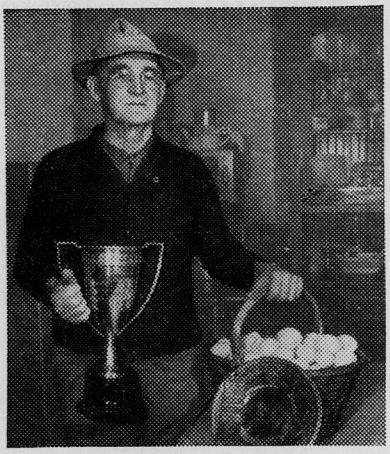
In addition to the many valuable services being rendered by the State agencies now serving you, the State government at all times desires to give the poultry and other industries every help possible to assist in the sound development and stability of these enterprises.

WM. PRESTON LANE, JR.

Governor

November 28, 1949





You too can have Fine Eggs
LIKE THE PRIZE WINNERS!

In 1949 Camelshell awarded handsome silver trays for the best eggs at agricultural fairs in Maryland and Pennsylvania. Shown above are pictures of two of the prize winners. Left, Clarence M. Harrison, Baldwin, Md., right, F. H. Scotten, Bel Air, Md. Both of these gentlemen have twice won first prizes in Camelshell contests, including numerous other "firsts". Other prize winners were: Frederick Fair, Mrs. David Derr and Miss Margaret Poole, Frederick, Md.; Mt. Joy Community Exhibit, Amos H. Sauder, Manheim, Pa., and Wayne G. Brubaker, Lancaster, Pa. You too can produce eggs like the prize winners.

Some of these poultry growers had never entered a Camelshell competition previously. Here's what Mr. Scotten says about Camelshell: "I have been using Camelshell for twelve years or more and know of no other shell builder than can equal Camelshell in either price or performance. Since using Camelshell, I've won many prizes at egg shows and take great pleasure in recommending it to other poultrymen interested in improving eggshell texture. No other grit or source of calcium is necessary when feeding Camelshell. I take care of my flock of 900 White Leghorns myself and like this dual purpose grit because it produces a shell of fine quality."

If your feed dealer cannot supply you with Camelshell, send us his name and we'll see that he is supplied. Also write for free folder and egg contest entry blank. Address HARRY T. CAMPBELL SONS' CORP., TOWSON, BALTIMORE 4, MD.

ALSO MANUFACTURERS OF LITTER-SNOW

Which Helps Keep the Litter Dry Without a Caustic Effect on the Chickens

CAMELSHELL

PRODUCED FROM CALCITE

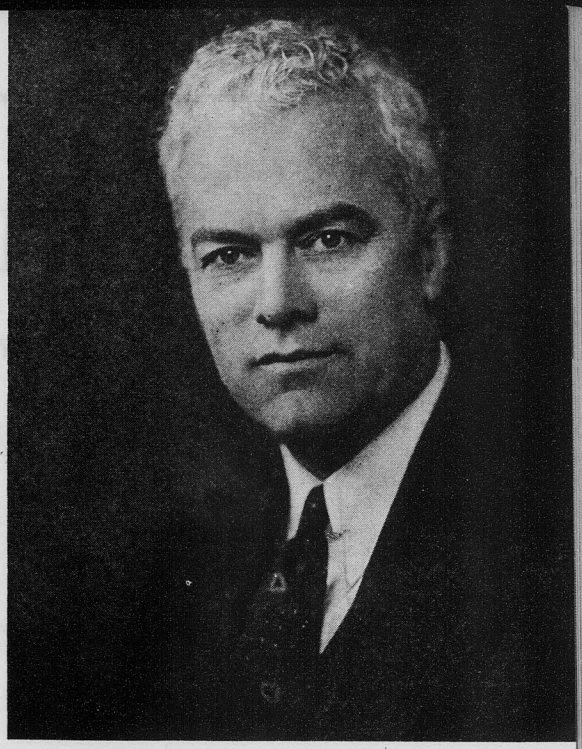
The Dual Purpose Poultry Grit

Greetings

to the

POULTRY PRODUCERS

OF MARYLAND



Gross income to Maryland poultrymen and farmers from poultry and eggs reached the all-time high figure of $77,700,000 for the year 1948 according to the U. S. Department of Agriculture.

When it is considered that this income was distributed among more than 35,000 of the 42,000 farms of the state, it becomes evident that the welfare of more Maryland farm people are concerned in their poultry enterprise than in any other single farm operation.

To further expand and stabilize the economic basis of this income requires not only a deep faith in the future of the industry, but careful study of numerous problems of production, processing, and marketing of our poultry products.

To better serve you and the allied industries which produce our poultry products in meeting current problems is a constant aim of the University of Maryland.

Fortunately, through increased appropriations, we have recently been able to improve teaching, research, extension, and regulatory facilities to more adequately meet requests made of the University. We believe these services are the best available to the poultry producers of any state.

We invite all poultry producers to utilize our facilities and personnel to the limit of our resources in finding the best solution to their problems and thus further develop the economic importance of this great industry to our State.

H. C. BYRD
President
University of Maryland

CONGRATULATIONS

to the members of

THE MARYLAND STATE POULTRY COUNCIL

Your united efforts in 1949 have carried you far along the road to producing the best possible eggs and poultry.

Each of you has a right to feel proud.

THE GREAT ATLANTIC & PACIFIC TEA COMPANY

National Egg & Poultry Department

Graybar Building — New York 17, N.Y.

Greetings

to the

POULTRY PRODUCERS

OF MARYLAND

Dear Friends:

I am glad to again extend greetings to the poultry producers of the State.

It is grand to have this industry maintain its own in the postwar period. Growing competition in different phases of the industry prompts us to be vigilant in all phases of efficient production and quality of the product.

I believe there remains an excellent opportunity to advertise Maryland's excellent poultry products among the consumers of the East. We will appreciate guidance from the industry in developing a more vigorous marketing program of consumer information. We are now making plans for analyzing our present work in this field and opportunities to do a better job.

We hope that 1950 will see our broiler plant completed on the Eastern Shore and a more stable situation surrounding the poultry plant at College Park, which obviously has been interrupted by virtue of building operations.

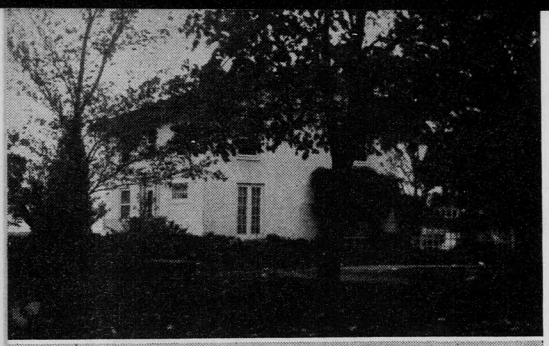
I trust the proposal to have your meeting and exhibit in advance of the Farm Bureau meetings in Baltimore will prove successful and that poultrymen will remain over to participate in the other agricultural meetings.

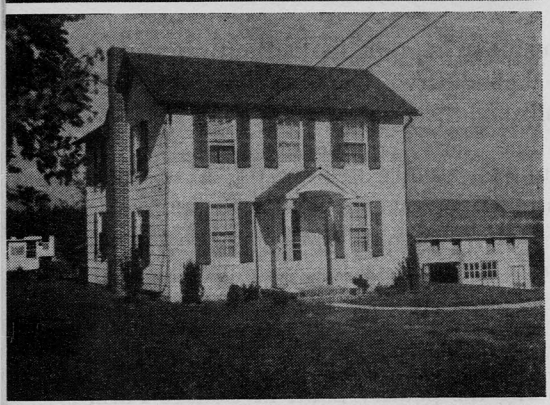
We have a grand industry in Maryland and the College of Agriculture in all of its divisions is happy to serve the industry to the best of its ability.

Sincerely yours,

T. B. SYMONS,

Dean and Director





Maryland Egg Producers Homes

Egg

GOOD BREEDING LOWERS FEED COST OF EGG PRODUCTION

MORLEY A JULL
University of Maryland

Market egg production is a very important enterprise in Maryland, returning several million dollars to farmers every year. The cost of feed at present represents about 65 percent of the total costs of producing eggs. It is very necessary, therefore, that each dozen eggs laid be produced on the fewest possible pounds of feed if flock owners are to secure maximum profits. Layers use the feed they consume in three different ways: (1) for body maintenance, which means that portion of feed used to sustain the normal activities of the body; (2) for the production of eggs; (3) for increase in body and weight, when such occurs. The amount of feed used for body maintenance is relatively much greater than that used for egg production.

The feed used for body maintenance returns no profit to the flockowner. The rate at which a flock lays is the most important factor determining the feed cost of producing eggs. In other words, the higher the rate of laying, the fewer the pounds of feed to produce each dozen eggs. A flock laying at an 80-percent rate uses about one-half as much feed for producing each dozen eggs as a flock laying at a 30-percent rate.

Most farm flocks do not lay as well as they should, with the result that the feed cost of producing eggs is too high.

Section

Reducing the feed cost of producing eggs is largely a matter of good breeding. It is the inherent ability to lay a large number of eggs that induces bred-to-lay birds to consume more feed than birds that have not been bred for high egg production. In spite of the higher feed consumption of good layers, they produce eggs on fewer pounds of feed per dozen than poor layers.

The results of one research project conducted by the poultry department of the University of Maryland showed that of the total amount of feed consumed by New Hampshires laying at a 72-percent rate, about 71 percent was used for maintenance, 27 percent for producing eggs, and 2 percent for increase in body weight. The New Hampshire pullets used in this study were the progeny of a bred-to-lay strain, otherwise they would not have laid as well and would have used relatively more of their feed for body maintenance and less for producing eggs.

The accompanying illustration was prepared from feed-consumption and egg-production records of White Leghorns and general-purpose birds in another research project. The importance of well bred stock in keeping the feed cost of egg production at a minimum is clearly indicated. For instance, a 4-pound bird laying 150 eggs consumes 6 pounds of feed per dozen eggs laid whereas a 4-pound bird laying 200 eggs consumes 5 pounds of feed per dozen eggs laid. Likewise, a 6-pound bird laying 200 eggs consumes 6.1 pounds of feed per dozen eggs laid. With feed at $80.00 per ton or 4 cents per pound, the 4-pound 200-egg bird pro-

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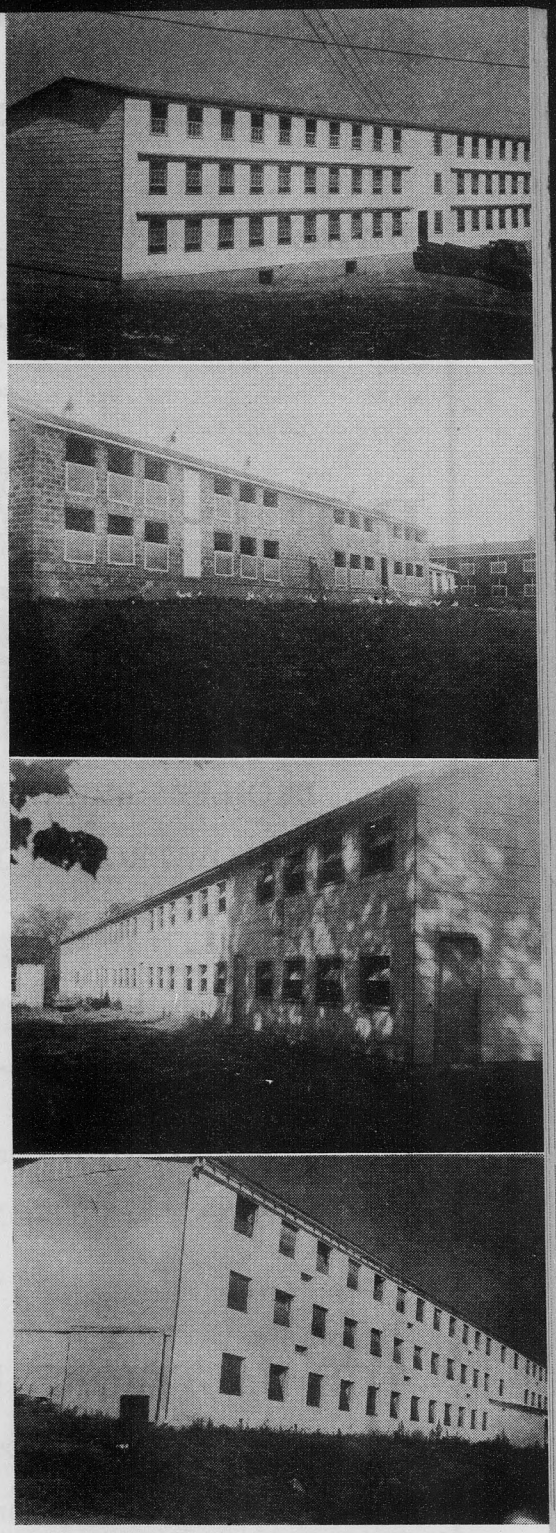

Multi-Story Houses Enables More Efficent Use of Labor with Layers.

Maryland Egg Producers Homes

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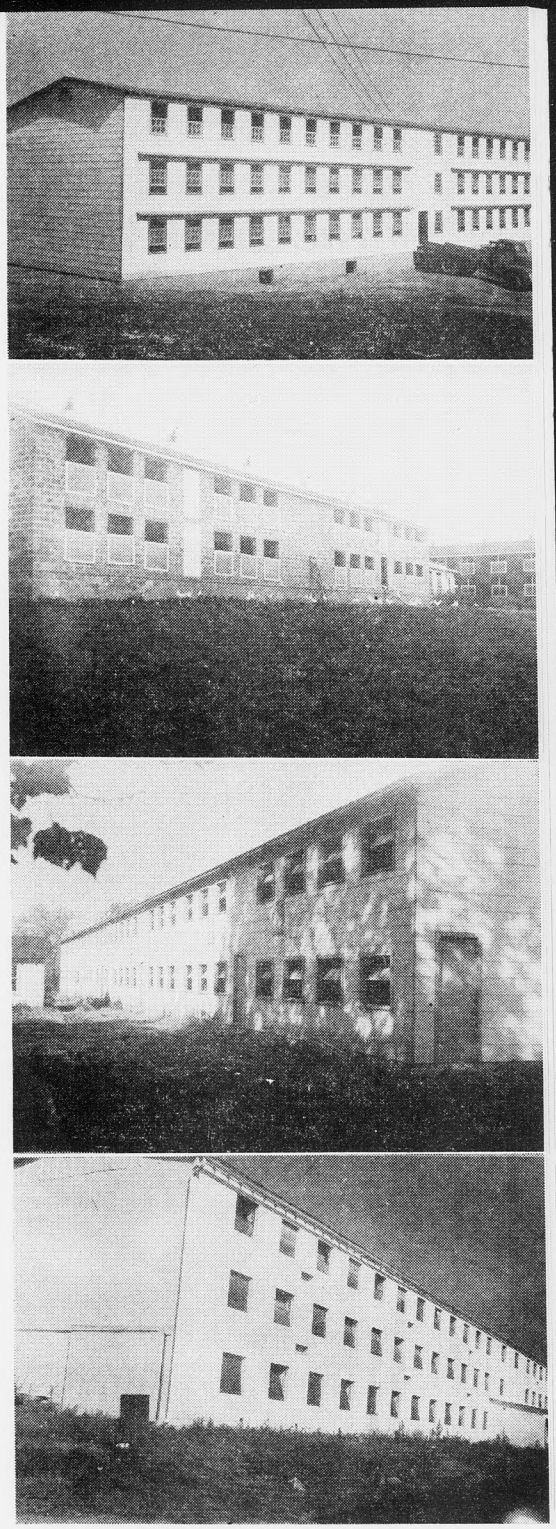

Multi-Story Houses Enables More Efficent Use of Labor with Layers.

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FOR MARYLAND POULTRYMEN

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AT LOW PRODUCTION COST WHEN FED

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A High Energy, Low Fiber Broiler Ration

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2341 Boston Street

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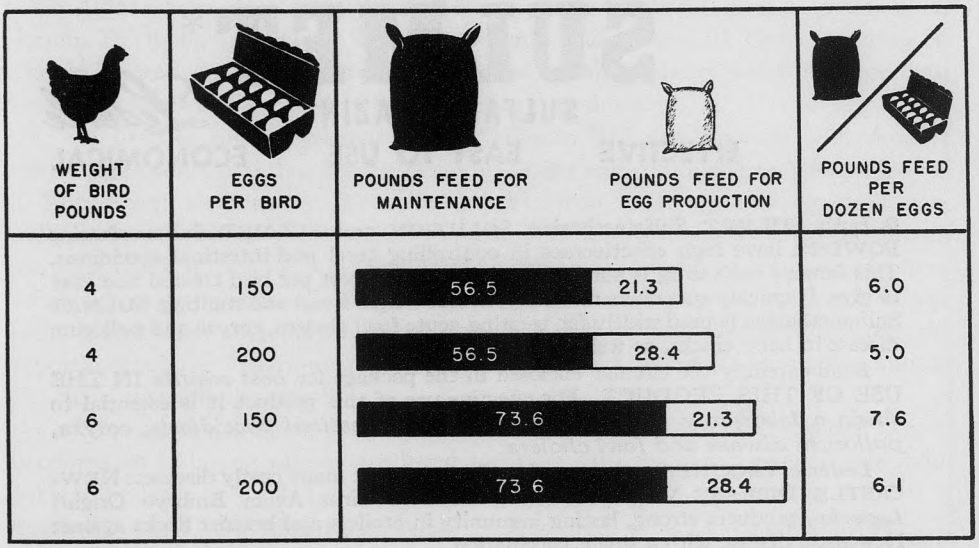
GOOD BREEDING LOWERS FEED COST OF EGG PRODUCTION

duced her eggs at 4 cents per dozen less than the 4-pound 150-egg bird, and the 6-pound 200-egg bird produced her eggs at 6 cents per dozen less than the 6-pound 150-egg bird.

The chart indicates that White Leghorns, many of which weigh approximately 4 pounds or slightly more, produce eggs more efficiently than general-purpose birds, many of which weigh approximately 6 pounds or slightly more. This is because the larger bird uses more pounds of feed for body maintenance. On the other hand, general-purpose birds have more meat value when culled from the flock than do White Leghorns.

LESS FEED PER DOZEN EGGS FROM HIGH PRODUCERS



The relatively higher meat value of general-purpose birds at culling time largely offsets the more efficient egg production of the White Leghorn. Also, flock owners who have general-purpose birds are usually able to sell hatching eggs at a premium for a much longer season than White Leghorn flock owners.

Finally, it is obvious that in order to keep the feed cost of producing eggs at a minimum, the layers must be bred for high egg production. Farmers and commercial market egg producers should secure chicks from breeders who have developed high laying strains.

The Alabama Station reports 17% more eggs from louse free pullets than from louse infested pullets during the first nine months of their laying year. No drop in production or objectionable flavor of eggs was noted following treatment with benzine hexachloride.

Do you believe that the annual income of farmers should be dependent upon appropriations from the Federal Treasury?

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● Both SULMET Sulfamethazine SOLUTION and SULMET Sulfamethazine POWDER have high effectiveness in controlling cecal and intestinal coccidiosis. This famous sulfa drug is surprisingly moderate in cost per bird treated and easy to give. It quickly cuts down mortality, avoids weight losses and stunting. SULMET Sulfamethazine is used widely for treating acute fowl cholera, coryza and pullorum disease in baby chicks, as well as coccidiosis.

Read carefully the circular enclosed in the package for *best results* IN THE USE OF THIS PRODUCT. For effective use of this product it is essential to obtain a *laboratory* diagnosis, *especially in intestinal coccidiosis, coryza, pullorum disease and fowl cholera.*

Lederle VACCINES protect poultry flocks against many costly diseases: NEWCASTLE DISEASE VACCINE (Modified Live Virus Avian Embryo Origin) *Lederle*—produces strong, lasting immunity in broilers and breeder flocks against Newcastle disease with a single vaccination.

FOWL-LARYNGOTRACHEITIS VACCINE (Avian Embryo Origin) *Lederle*—produces strong, lasting immunity in broilers and breeder flocks against fowl laryngotracheitis.

PIGEON-POX VACCINE (Avian Embryo Origin) *Lederle*—for use in protecting broilers against fowl pox.

FOWL-POX VACCINE (Avian Embryo Origin) *Lederle*—for use in older birds—establishes complete, lasting protection against fowl pox.

We will gladly send free, upon request, our book, "Control of Poultry Diseases," which has been widely and favorably commented upon by leading scientists and poultrymen.

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Poultry Department

LEDERLE LABORATORIES DIVISION

AMERICAN Cyanamid COMPANY

30 ROCKEFELLER PLAZA NEW YORK 20, N. Y.

Lederle
ANIMAL INDUSTRY SECTION

FEED YOUR BREEDERS WELL

by

DR. G. F. COMBS

Poultry Department, University of Maryland, College Park, Md.

For some time it has been recognized that the nutritive requirements of hens are greater for the production of good hatching eggs than for egg production only. More recently, however, it has been shown that the diet of the breeders not only influences the hatchability of eggs, but also markedly effects the viability and early nutritive requirements of the chicks produced. In view of the real economic importance of high hatchability of eggs and the production of strong, vigorous chicks, careful attention should be given to the nutritive requirements of the breeders. This is particularly true if the breeders are kept in strict confinement.

It has been demonstrated that hens require a higher level of vitamin A, vitamin D, riboflavin, vitamin B12, pantothenic acid, folic acid, biotin, vitamin A, vitamin K, and manganese for the production of high quality hatching eggs than is required for layers kept solely for market egg production.

A breeder ration deficient only in vitamin B12, for example, will support normal egg production, but the hatchability of the eggs produced may be as low as 40-50 per cent. Futhermore, the chicks hatched from such eggs will not grow normally and will exhibit poor livability during the first few weeks even though an adequate chick starter ration is fed. Conversely, chicks produced from eggs of hens fed an adequate breeder ration will live and grow normally up to four weeks of age even though their diet may be low in vitamin B^{12}. This example illustrates the importance of the "carry-over" of certain important nutrients from the dam to the chick through the egg yolk.

The nutrients which deserve the most attention in practical breeder rations as compared to laying rations are listed together with the recommended minimum levels to be fed.

Nutrient	Minimum Amt. for Chickens	Required for Turkeys	Good Sources
Vitamin A, I. U./lb.	3,300.0	4,000.0	Vit. A oils, alfalfa meal, yellow corn
Vitamin D, A.O.A.C. units/lb.	450.0	800.0	Vit. D oils, "D" activated animal sterols
Riboflavin, mg./lb.	1.3	2.0	Riboflavin concentrate fermentation products, milk products, and synthetic riboflavin.
Pantothenic Acid, mg./lb.	5.0		Alfalfa meal, soybean meal, dried yeast, dried whey, and synthetic calcium pantothenate
Vitamin B12*, microgram per lb.	7.5	10.0	Fish meal, liver meal, cond. fish soluble, crab meal, and animal protein factor concentrates
Manganese, mg./lb.	15.0	15.0	Manganese sulfate

* Or 15 and 20 milligrams of vitamin B12 activity per ton for chickens and turkeys, respectively.

Matthews Poultry, Inc.

Box 1013

SALISBURY, MARYLAND

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NEW YORK DRESSED

and

READY-TO-COOK CHICKENS

HASTINGS HATCHERY
BROILER CHICKS

The Eastern Shore's Best Graded Chicks

WHETHER YOU WANT
50 OR 50,000
IT PAYS TO BUY
HASTINGS CHICKS

Maryland U.S. Approved
Pullorum Clean Hatcheries
Total Capacity 2,600,000 Eggs

ROGERS ARKANSAS

PARSONSBURG, MARYLAND
Phone 4144

HEN CACKLES

Average egg prices from July to December are 30% higher than from January to June. Solution? Early hatched pullets!

—o—

Minmum space recommendations per 100 layers according to the American Feed Manufacturers Association Committee:

Feeding — 32 linear feet of hopper
Roosts — 50 linear feet for Leghorns—58 for heavies
Floor space — 300-400 square feet for confinement
Nest space — 20 box nests or equivalent in community nests
Watering — one 8 gal. fount or one automatic per 300 layers

—o—

In using a catching crate for culling, testing, etc., try running all birds in outside yard and place crate on inside over exit door. This usually works better than driving the birds into a crate placed outside, especially in the morning.

—o—

24 x 24 ft. laying shelters are an asset in handling large laying flocks. They provide quarters for either early pullets or hens transferred from laying house to make room for early pullets. They cost much less than laying houses per bird to construct.

—o—

Litter insulates the floor as well as aids in evaporation of moisture from the droppings. Built-up litter does this better than thin litter.

—o—

In Washington State College experiments with alfalfa in laying rations, layers on rations containing more than 2½% alfalfa laid as well for six months as the 2½% alfalfa group, but lost body weight which gave lower egg production the last six months as compared to the 2½% level group.

—o—

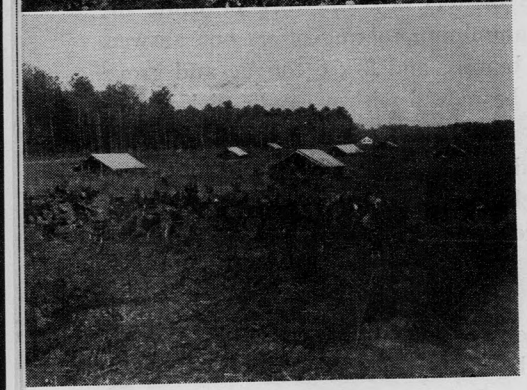
For the poultryman who wants 10 x 12 ft. movable colony brooder houses for range rotation in conjunction with range shelters, a framework of white fir, quarter inch plywood walls and ceiling, and aluminum roofing offers one answer. 4 x 6 skids placed 2½ ft. from sides to clear bumps, and 2 x 6 tongue and grove flooring gives strong floors. Such a house can be moved with a car or pick-up.

—o—

20 x 20 foot pens for layers are outmoded. Removing partitions to increase flock sizes to 300 or 400 birds each saves enough on chore labor to more than offset any disadvantages. Larger rooms in the newer houses is the poultryman's route around the labor problem.

—o—

Four feet is the proper length for a hen catching hook for most accurate catching. It is a must for every poultryman who does a really good job of culling. Hook the birds low, around the ankle, not around the hocks. 3/16 inch steel wire is best and the hook loop should be parallel rather than v-shaped.



Clean Ranges and Pasturage Aid Health of Maryland Poultry Flocks

Hatchery

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Fiery's Hatchery—Smithsburg
*Heiner, Edward—Glen Arm

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*Alexander, Jas. H.—R. 16, Box 168—Baltimore 21
*Blundon, Harry W.—Monkton
Bradley's Hatchery—Easton
*Carr, Sam—Rockville
Cowans Poultry Farms and Hatchery—Bowie
Cumberland Valley Hatchery—Maugansville
Dornbush, Geo. J.—Prince Frederick
Dryden's Hatcheries—Snow Hill
*Eckrick, W. P.—Mt. Airy
*Elder Bros.—Hyde
Evering Poultry Farm—R. 16, Box 69, Baltimore 21
Hoags Norbeck Hatchery—Rockville
Hastings' Hatchery—Parsonsburg
***Kinchel, B. C.—Clinton**
Laurel View Hatchery—Laurel
*Lindsay, Ralph D.—Silver Spring
Maryland Chick Hatchery—Frederick
Matthews Hatchery—Salisbury
*Mayne, Mehrl—Rockville—R.F.D. 4
Morris, R. C.—Trappe
*Morse, J. M.—Forest Hill
Mt. Airy Hatchery—Mt. Airy
Nock's Snow Hill Hatchery—Snow Hill
*Quigley, Geo. D.—Laurel
Rehoboth Hatchery—Rehoboth
*Scaggs, M. E.—Laurel
***Seneca Park Poultry Farm—R. 14, Box 701, Baltimore 20**

Section

Southern Md. Hatchery—Aquasco

Spearin's Hatchery—Salisbury

*Stevenson, I. E.—Hanover
Stonesifer Poultry Farm—Keymar
*Suit, Lloyd B.—R. 1, Annapolis
*Taylor, Elwood—Berwyn

Wilsons Hatchery—Rising Sun

*Windsor, E. F.— R. 1, Annapolis
*Winmar Hatchery—Silver Spring

MARYLAND-U.S. APPROVED PULLORUM-CLEAN HATCHERIES

Esham's Hatchery—Parsonsburg

H & M Hatchery—Ocean City
Hayden, T. G.—Centreville
Morris Poultry Farm—Bishopville

Perdue's Hatchery—Salisbury

Small & Bull Hatchery—Pocomoke

Swift & Co., Hatchery—Salisbury

Whittington, Norman T.—Marion

MARYLAND-U.S. PULLORUM-PASSED HATCHERIES

Andrews, Jos. A.—R. 4—Hagerstown

Beck's Hatchery—Mt. Airy
Bramble Poultry Farm—Chestertown
Duckworth, C. E.—Hanover
Dunn, J. J.—Cambridge
Eglantine Poultry Farm—Greensboro
Farlow's Hatchery—Pittsville
Foard's Hatchery—Rocks
Hayes Hatchery—Thurmont

Hines Hatchery—Olney

*Hoffmasters Poultry Farms—Randallstown
Knox, Geo. Edward—R. 6, Westminister
Lawyer's Hatchery—Thurmont
Marshalls Hatchery—Hagerstown
Milford Hatchery—Randallstown
*Morse, J. M.—Forest Hill
Rock Hill Hatchery—Preston
Stonesifer Poultry Farm—Keymar
Streett's Hatchery—Rocks
Truslow Poultry Farm—Chestertown
West Denton Hatchery—Denton

MARYLAND-U.S. PULLORUM PASSED HATCHERIES

Willing Hatchery—Sharptown

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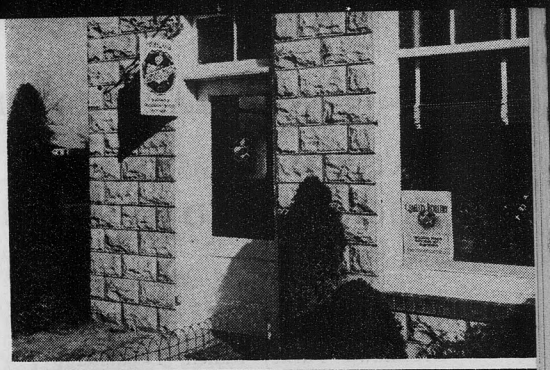
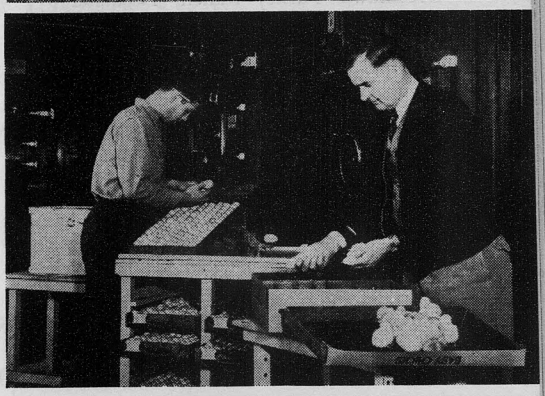
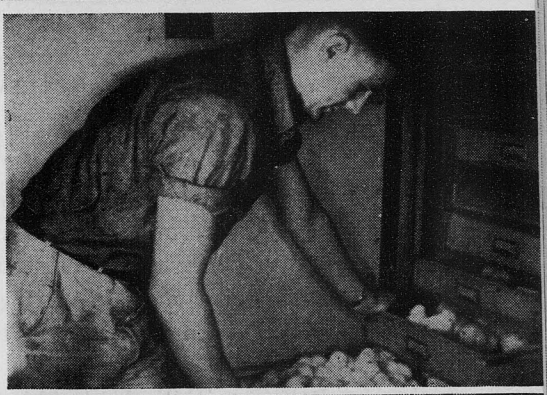
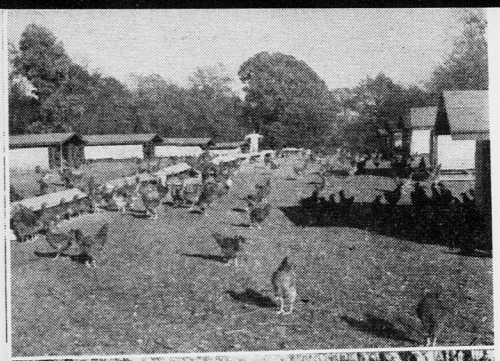






Maryland Hatcheries Are Among The Nation's Best



Clean Ranges and Pasturage Aid Health of Maryland Poultry Flocks

Hatchery

Maryland Hatcheries and Dealers Official Ratings As Of 11-15-'49

MARYLAND-U.S. R.O.P. BREEDERS

Fiery, J. F.—Smithsburg
Sattler, Mrs. A. W.—Monkton

MARYLAND-U.S. CERTIFIED PULLORUM-CLEAN HATCHERIES

Fiery's Hatchery—Smithsburg
*Heiner, Edward—Glen Arm

MARYLAND-U.S. APPROVED PULLORUM-CLEAN HATCHERIES

***Ahmuty, Sam—Odenton**
*Alexander, Jas. H.—R. 16, Box 168—Baltimore 21
*Blundon, Harry W.—Monkton
Bradley's Hatchery—Easton
*Carr, Sam—Rockville
Cowans Poultry Farms and Hatchery—Bowie
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Dornbush, Geo. J.—Prince Frederick
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*Eckrick, W. P.—Mt. Airy
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Hoags Norbeck Hatchery—Rockville
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Hayes Hatchery—Thurmont

Hines Hatchery—Olney

*Hoffmasters Poultry Farms—Randallstown
Knox, Geo. Edward—R. 6, Westminister
Lawyer's Hatchery—Thurmont
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MARYLAND-U.S. PULLORUM PASSED HATCHERIES

Willing Hatchery—Sharptown

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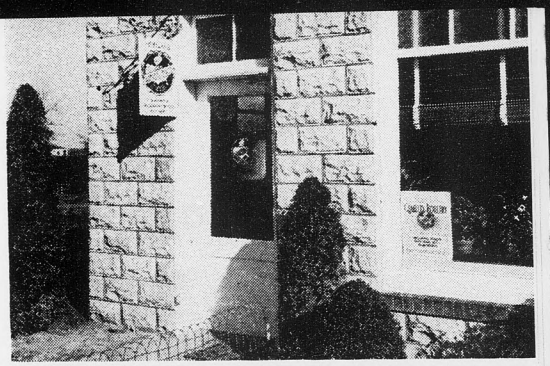

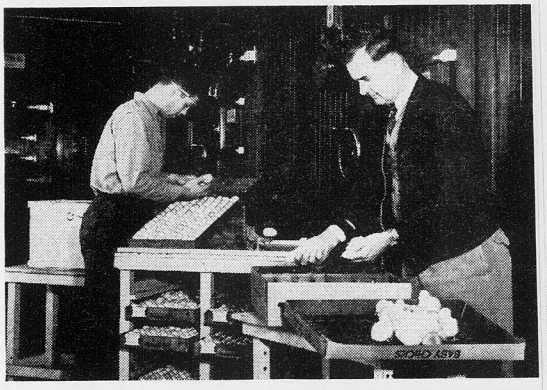

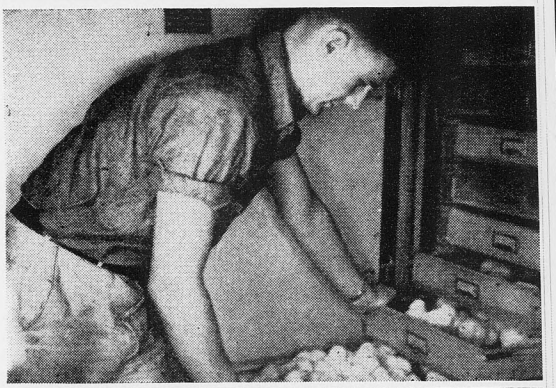

Maryland Hatcheries Are Among The Nation's Best

MARYLAND HATCHERIES and DEALERS

HATCHING EGG DEALERS CHICKENS AND TURKEYS

MARYLAND-U.S. APPROVED PULLORUM-CLEAN

*Greenlawn Turkey Ranch—Pasadena
Interstate Hatching Egg Service—Trappe
Merriken, L. S.—Federalsburg

MARYLAND-U.S. APPROVED PULLORUM-PASSED

Davis, Wilmer Fell—Federalsburg
Potts, Emmitt—Hillsboro

TURKEYS only HATCHERIES

MARYLAND-U.S. APPROVED PULLORUM-CLEAN

*Chewning, E. Taylor—Nutwell
*Hillside Turkey Farm—Hhurmont
*Maple Heights Turkey Farm—Sparks
*Norman Turkey Farm—Charlotte Hall
*Rugh's Turkey Farm—Elkton
*Sattler, Mrs. A. W.—Monkton
*Schramm's Turkey Farm—Pasadena
*Thompson, H. George—Great Mills
West Sherwood Farms—St. Michaels

MARYLAND-U.S. APPROVED PULLORUM-PASSED

*Rader, R. P.—Box 159, Towson

BUY YOUR CHICKS AND POULTS FROM MARYLAND HATCHERIES

by

C. R. DAVIS, *Supervisor*

Maryland Poultry Improvement Plan

The pasture across the road always looks greener. Fancy ads from out-of-state hatcheries tend to make purchasers of chicks and poults feel they are getting something better. This was probably true ten years ago as many states were ahead of Maryland in Pullorum control. However, today in Maryland there are many hatcheries with Pullorum Clean and Pullorum Passed ratings and these ratings mean the same in any state. Practically every breeder in Maryland that is officially testing for Pullorum is also having his flocks officially culled. The only hatcheries in Maryland today that are operating under the National Plan that do not have an Approved (breed improvement) rating along with the Pullorum rating are those that import hatching eggs from some other state where breed improvement is not stressed as it is in our Maryland flocks.

The quality of our breeding flocks (chickens and turkeys) is as good as in other states, the Pullorum status is as good as any others and far better than some, the sanitation of our hatcheries is above par, and your local hatcheryman is available for discussion on your problems plus the fact there is the danger of injury to chicks and poults on long shipments. With the Pullorum Control and quality of their product of Maryland hatcheries being as good or better than those from out-of-state, why not deal with our own hatcheries and help them; which, in turn, will help the poultry people and the industry in Maryland.

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ESHAM'S HATCHERY

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Delmarva's Faster-Growing Full-Feathering Chicks

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E. B. PARMENTER No. 4 Males — J. J. WARREN Female Foundation Stock
ALL BROODIES REMOVED

Exceptionally rigidly culled breeders to give high quality chicks. Limited quantity not more than 1,000 per week or per order.

Suitable for flock improvement for higher egg production.

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CLINTON, MARYLAND *Breeder — Hatcher*

For quality and economy

Sherwood FEEDS

TRADE MARK REG.

SCIENTIFICALLY CONTROLLED

SHERWOOD FEED MILLS, Inc.

500 President Street — Baltimore 2, Md.

Phone Saratoga 4050

WHY SELECT?

MORLEY A JULL

Head, Poultry Department, University of Maryland

The question "Why Select?" has a very simple answer: "To Improve the Breeding Quality of Your Flock."

Selection, of course, is done with different objectives in mind. Farmers, commercial market egg producers, and poultry breeders select the best developed pullts each year for the laying house and cull the poorest ones. Culling is negative selection. Throughout the first-laying year, all flock owners cull layers that fall by the wayside for one reason or other. This sort of culling automatically results in selecting the best layers during the year. Since these unculled birds are often used as breeders the next breeding season, the breeding quality of the flock has been improved. The real problem, however, is why and on what basis poultry breeders should select certain birds for future breeding purposes.

In order to improve the breeding quality of a flock from year to year, future breeders must be selected from among the progeny of the best breeders used the preceding year. The breeding worth of a pair of birds is determined by the kind of progeny they produce. The progeny of superior sires and dams should certainly make better future breeders than the progeny of inferior sires and dams. Progeny testing is the key to breeding for improvement in egg production, egg size, egg quality and other characters of economic importance in which poultry breeders are interested. In addition to the selection of future breeders from among the progenies of superior sires and dams, further improvement in developing a sound breeding program is possible by selecting cockerels and pullets from among the various families on the basis of the performance of a cockerel's or a pullet's full sisters.

One of the most convincing bits of evidence indicating the value of selecting breeding stock on the family basis to improve egg production and egg weight is the recent report of results secured by Dr. H. D. Goodale.

Breeding to improve efficiency of egg production was begun in 1918 with the best strains of birds available at that time. From 1923 to the present, the breeding work has been confined to the original strains, a closed-flock breeding system being employed. Complete families of full sisters were maintained for 15 months after the first-hatched pullets were placed in the laying house each year. Fortunately, from the standpoint of appraising the various families, culling was not necessary. Thus a more reliable index of family performance was obtained than would have been possible if culling had been practiced during the laying year. From 1923 to 1929, efforts were concentrated on improving egg production. From 1929 to 1946, breeding for higher egg production was continued and in addition special attention was paid to the selection of breeders to increase egg size. The

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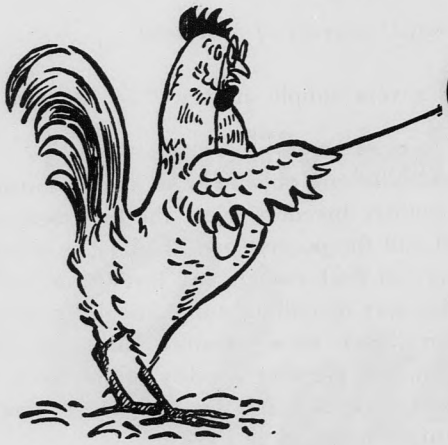

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PROVICO
FEEDS AND CONCENTRATES

More Meat From Every Bag!
Fine Quality Birds That
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SEE YOUR LOCAL
PROVICO DEALER
FOR POULTRY AND
ALL LIVESTOCK FEEDS

PROVICO FEEDS
CINCINNATI 32,0

WHY SELECT?

data in the accompanying table show the excellent progress made in increasing egg production and egg weight.

YEAR	Average number of eggs per hen per year	Average spring egg weight in ounces	Average weight in ounces of eggs yer hen per year
1923	168	1.85	310.8
1929	220	1.85	407.0
1946	237	2.30	545.0

The results given in this table show the progress achieved by progeny testing and selecting future breeders on a family basis. From 1923 to 1946 the increase in efficiency in weight of eggs produced was 75.4 percent. Now you know the answer to "Why Select?"

HATCHERY NOTES

Built-up litter is apparently a source of supplemental food factors according to Ohio Station experiments. Higher hatchability was obtained from flocks on built-up litter than from flocks on the regular litter cleaning schedule.

—o—

Eggs from flocks that have passed through an attack of Newcastle are safe to use when fertility reaches profitable levels again, according to studies at Iowa State College.

—o—

Missouri experiments showed that soiled, cooled eggs washed in a 10% quaternary ammonium compound solution and held from one to fourteen days hatched as well as clean, unwashed eggs incubated under the same conditions.

—o—

Experiments by Kish at the Delaware Station indicate a lower hatchability in Barred Rocks with wide breasts than those with narrow breasts.

—o—

Dark and medium shade brown eggs hatch better than light brown ones.

—o—

About 90% of the eggs produced in the Massachusetts Clean Egg Nest are clean. Front of nest is 13½ inches high with board beveled on edge for tight fit with top lid. Back is 30 inches high with sloping top in two sections 16 and 14 inches wide. The 14 inch section is hinged for gathering. Width of nest is 24 inches. Front and back ends are not nailed to nest floor and top is held in place with hooks and eyes to provide for dismantling when cleaning. Egg breakage and pick-out sare reduced and litter stays in good condition for six to eight weeks longer than the individual type nest.

—o—

Community nests with sloping floor to cause eggs to work to front of nests facilitates quick gathering, reduces breakage, and causes less distrubance of hens on nest.

ESSCO SUPPLY COMPANY

SALISBURY, MARYLAND

QUALITY HATCHERY & POULTRY SUPPLIERS

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- **ANDERSON BOX COMPANY**
- **THE BIG DUTCHMAN Automatic Poultry Feeder**
- **The DUO-JET Oil Brooder Stove**
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The Best Costs Less

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QUALITY RESULTS *at Low Cost!*

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WRITE FOR LITERATURE

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MILLS AT CHICAGO, ILL — WILMINGTON, DEL. — MARSHALL, MISSOURI

GOOD CHICKS FROM GOOD BREEDERS

Pullorum Clean

RED — ROCK CROSS — N. H. REDS

BARRED ROCKS — WHITE ROCKS

Large Type White Leghorns

HILLSIDE HATCHERY Smithsburg, Md.

MORE ABOUT LOCAL HATCHING EGGS

By PERRY F. TWINING
Extension Poultry Specialist

The Delmarva Peninsula has long been recognized as the nation's leading broiler production center. This we accept as a fact. There is, however, a fact which goes hand in hand with this distinction, the advantage of which the poultrymen of Maryland have been slow to take. By the very nature of its chief enterprise, the growing of broilers, this area provides an excellent market for quality hatching eggs.

Quality in a hatching egg is manifest in the ability of the egg to produce a healthy, sturdy chick. The factors which govern this quality are, for the most part, in the hands of the producer until the eggs are delivered to the hatchery. There are two phases in this control. The first phase involves flock management in regard to housing and litter, feeding, disease control and the many correlated factors which come under the heading of husbandry. The second phase has to do with the path of the egg from hen to hatchery and could rightly be termed egg management. Here the manager is in complete control. Yet is is here that much of the poor quality originates.

Good egg management dictates the following requirements:

1. Frequent gathering — The eggs should be gathered at least twice a day, and more often during the warmer months.
2. Fast cooling — The eggs should be cooled to a temperature below 70° F. as rapidly as possible.
3. Proper storage — Hatching eggs should be stored at a temperature between 55° F. and 65° F. They should never be allowed to reach a temperature above 65° F. while in storage.
4. Short holding period — The eggs should be moved to the hatchery as soon after they are cooled as possible. This is especially true during the summer months when the storage temperature is likely to be higher than usual. Never should they be held more than 7 days.

If there is adherence to these practices in the management of the eggs, their quality need no longer be an uncertainty.

The second reason often advanced for discrimination against locally produced hatching eggs is that the supply is not constant. The great majority of the local producers put out chicks in the late winter or early spring months. These pullets come into full production in the late summer or early fall, resulting in a great influx of hatching eggs in the fall months. During the late spring and early summer of the following year the production of these birds tapers off, and, since the new flock of late pullets is not yet in production, there is a shortage of local hatching eggs during the summer months. The solution to this problem is merely a matter of redistribution of production. At least one hatcheryman has initiated among his flock owners a policy of having different breeders start their chicks at different periods of the year, one group in October, another group in February, and another group in June. This is a very sensible plan from the standpoint of having a constant supply of hatching eggs. This should erase from his plans the second registered objection to locally produced hatching eggs.

from the first day!

Pave the Way to Bigger Profits with the NEW, Improved KASCO CHICK STARTER

Kasco Chick Starter is now a new, improved feed that brings you LOWER FEEDING COSTS and INCREASED EFFICIENCY.

Now on Kasco* . . . chicks need less feed per pound of growth . . . it's *PROVED!

Now on Kasco* . . . chicks gain faster at lower cost . . . it's *PROVED!

Today, Kasco Chick Starter with *Bio* PROTEINS, plus its extra nutritive values, gives *better* results than ever before. That's why Kasco Chick Starter—from the first day—paves the way to bigger profits!

Feed your chicks the new, improved KASCO CHICK STARTER

KASCO

KASCO MILLS, INC.

TOLEDO 4, OHIO or WAVERLY, N. Y.

SUMMER HOUSING PROBLEMS

GEORGE D. QUIGLEY
University of Maryland

"Summer heat is more costly to Maryland poultrymen than is winter cold, and it is high time we were doing something about it."

This statement may sound a little rash at first, especially if one is reading this in January and worrying about the radiator and the water pipes freezing up outside. True, many operators, both egg producers and broiler men, have realized individually that excess heat can cost them profits, but it has not been until recently that leading operators have realized that effective measures should be taken.

Now we have additional scientific evidence that heat is the big bug-a-boo of the egg and broiler men, and probably the turkey grower too. From the scientific laboratories of the University of California comes word that when the temperature rises from 70° to 80° there is a slight reduction in egg size, thinner shells (more breakage) and increased water consumption. When the temperature climbs to 90° the loss in weight by layers is serious, feed consumption is reduced substantially, there is definite loss in size and interior quality of eggs, shells become thinner (more and more breakage) and broilers may cease to gain, and actually lose weight. These trends are accelerated when the mercury climbs to the 100° mark, at which point there is real danger of heat prostration and death of birds. Egg production may stop if temperatures much above 100° are encountered, and hatchability may be lowered by 50% or more because of reduced activity of roosters.

It may be said safely that Maryland losses in fertility, hatchability, growth, fleshing, egg shells, egg numbers and egg quality, plus carcass loss of birds which die, is upwards of $500,000 and more every normal summer.

Fortunately we can do some practical things to keep our layers, broilers, and turkeys comfortable in hot weather, and at reasonable cost.

The first measure is to build lots of cross ventilation facilities into the rear of the house to let the heat **out.** This is usually the cheapest measure and should be done first. There are thousands of smaller laying houses needing remodeling for better summer ventilation, and some broiler houses which were constructed many years ago. Broiler houses constructed more recently have shown better summer ventilation characteristics.

Other measures which are effective are the use of aluminum in sheet, roll, or paint form to keep the heat out. These materials have proven very satisfactory for reducing interior temperatures, and they provide in addition long lived roofing at low cost. They have a definite value in our program but for maximum satisfaction should always be applied in accordance with the directions supplied by the manufacturer.

Other methods which have been tried in parts of the United States have been mechanical air circulation by electric fans, and sprinkling of roofs by hand or mechanical means. At College Park next summer we intend to try out some ideas for cheap cooling by water to see if it is practical to keep our chickens comfortable by just turning a water valve at 11:00 A.M. on hot days and letting the water trickle for a few hours.

HIGH EFFICIENCY BROILER RATION FOR 1950

By DR. G. F. COMBS
Professor, Poultry Nutrition, Poultry Dept., University of Maryland, College Park, Md.

	%
Gr. yellow corn	53.345
Pulv. oats	5.0
Fish meal, 60%	2.5
Meat scraps, 55%	2.5
Soybean meal	24.0
Corn gluten meal	2.5
Dhy. alfalfa meal	3.0
Dried whey	3.0
*Fermentation soluble product	1.0
Defl. super phosphate	1.5
Gr. limestone	1.0
Salt	0.5
Manganese sulfate	0.025
"D"-activated animal sterols	0.03
Fish liver oil (400D, 2000A)	0.1
choline chloride	200 mg./lb.
Nicotinic acid	8 mg./lb.
APF conc. to supply	4 micrograms of vit. B-12 per lb.

* Computed on basis of B-Y 500

CALCULATED ANALYSIS

Crude protein, %	20.0
Crude fiber, %	4.2
Calcium, %	1.35
Phosphorus, %	.7

IT'S BREEDING THAT COUNTS

DON'T JUDGE A CHICK BY ITS LOOKS ALONE

BARRED CROSS

NEW HAMPSHIRE

100% Pullorum Clean

GOOD BREEDING MEANS
More Vitality — Better Feathering
More Uniformity — Better Weight
and
MORE PROFIT FOR YOU!

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SALISBURY, MARYLAND
Phone 4521

Broiler

THYROPROTEIN AND BROILER PRODUCTION

By Dr. C. S. SHAFFNER

Poultry Department, University of Md., College Park, Maryland

Within relatively recent times, a good deal of information has accumulated concerning the action of hormones in the control of body processes. There are many kinds of glands in the body, some of which empty their secretions into the digestive tract; others, like sweat glands, empty their secretion on to the surface of the body. The endocrine or ductless gland is a kind of gland that liberates its secretion directly into the blood stream, and it is the secretions of these glands that are called hormones. These hormones are powerful regulators of many physiological processes. For example, the female sex hormone is responsible for the growth of the oviduct or egg tube, while the male sex hormone is responsible for the growth of the comb of the rooster. The thyroid gland through its hormone called thyroxin, among other things, regulates the rate at which the body uses energy. The chemists have been able to produce compounds that resemble the natural secretion of some of these glands and that will exhibit hormone effects. One of these synthetic compounds called thyroprotein has about the same effect as the thyroxin produced by the thyroid gland and offers some possibility in broiler production.

Investigations at the University of Maryland have shown that some strains of chickens grow faster when fed this compound. This increase in the rate of growth apparently results because the bird's natural secretion is somewhat de-

Section

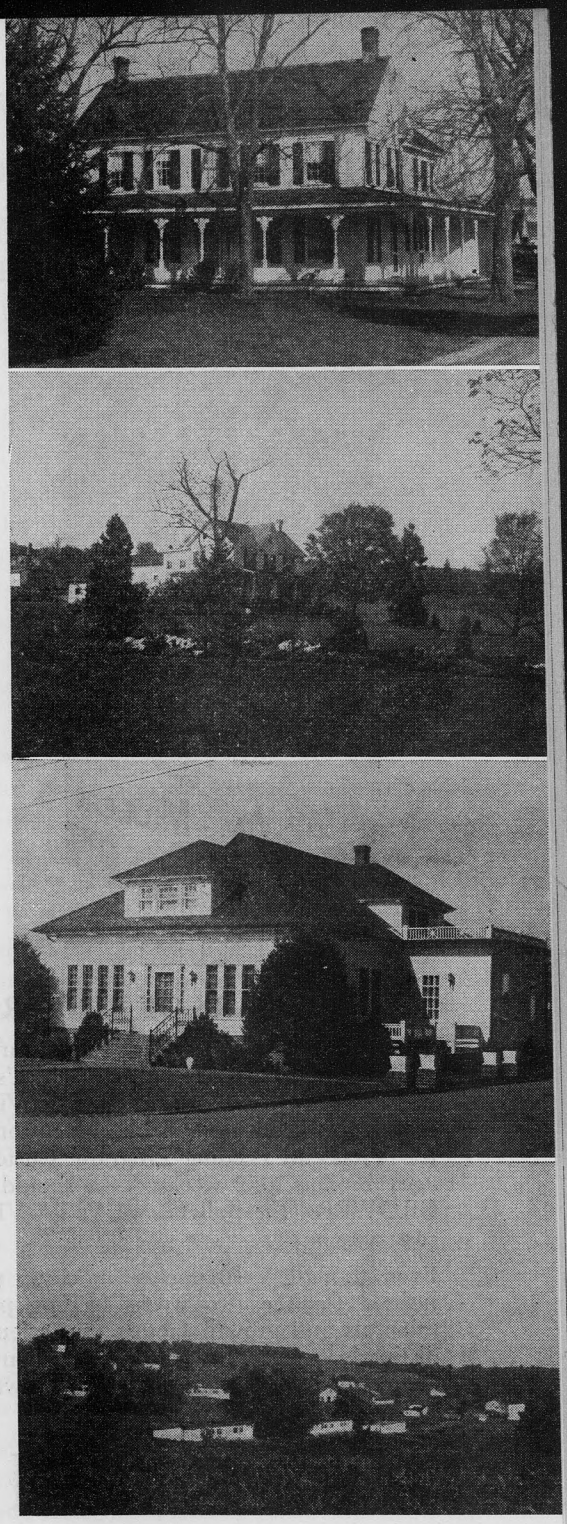
ficient for optimum growth. Work at other experiment stations indicate that thyroprotein feeding may enable the birds to recover from coccidiosis more rapidly.

Previous investigators have recommended the use of 10 grams of thyroprotein per 100 pounds of feed (0.022 per cent); however, our results indicate that 5 grams per hundred pounds of feed give somewhat more economical gains. The rapid growing strains of New Hampshire chickens did not respond to this stimulation as readily as did some slower growing strains; hence, it will be necessary to conduct some field tests in the broiler area before definite recommendations can be made.

The stimulation from thyroprotein is greatest during hot weather. It is known that the natural secretion of the thyroid gland is at a minimum when the environmental temperature is high. These facts indicate that at least part of the reason for the slower growth during hot weather is the deficiency of the thyroid hormone.

Observations at the University of Maryland and at other experiment stations have shown clearly that this hormone is also concerned with the rate of feathering; however, these same experiments have shown that levels of thyroprotein sufficiently high to effect feathering lower efficiency of growth.

It is, thus, evident that the thyroid gland is very important in controlling body processes and that when additional information is gained, the supplying of additional thyroxin may lead to more efficient broiler production.



Maryland Broiler Growers' Homes and Buildings Reflect Good Management

HIGH EFFICIENCY BROILER RATION FOR 1950

By DR. G. F. COMBS
Professor, Poultry Nutrition, Poultry Dept., University of Maryland, College Park, Md.

	%
Gr. yellow corn	53.345
Pulv. oats	5.0
Fish meal, 60%	2.5
Meat scraps, 55%	2.5
Soybean meal	24.0
Corn gluten meal	2.5
Dhy. alfalfa meal	3.0
Dried whey	3.0
*Fermentation soluble product	1.0
Defl. super phosphate	1.5
Gr. limestone	1.0
Salt	0.5
Manganese sulfate	0.025
"D"-activated animal sterols	0.03
Fish liver oil (400D, 2000A)	0.1
choline chloride	200 mg./lb.
Nicotinic acid	8 mg./lb.
APF conc. to supply	4 micrograms of vit. B-12 per lb.

* Computed on basis of B-Y 500

CALCULATED ANALYSIS

Crude protein, %	20.0
Crude fiber, %	4.2
Calcium, %	1.35
Phosphorus, %	.7

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Broiler

THYROPROTEIN AND BROILER PRODUCTION

By Dr. C. S. SHAFFNER

Poultry Department, University of Md., College Park, Maryland

Within relatively recent times, a good deal of information has accumulated concerning the action of hormones in the control of body processes. There are many kinds of glands in the body, some of which empty their secretions into the digestive tract; others, like sweat glands, empty their secretion on to the surface of the body. The endocrine or ductless gland is a kind of gland that liberates its secretion directly into the blood stream, and it is the secretions of these glands that are called hormones. These hormones are powerful regulators of many physiological processes. For example, the female sex hormone is responsible for the growth of the oviduct or egg tube, while the male sex hormone is responsible for the growth of the comb of the rooster. The thyroid gland through its hormone called thyroxin, among other things, regulates the rate at which the body uses energy. The chemists have been able to produce compounds that resemble the natural secretion of some of these glands and that will exhibit hormone effects. One of these synthetic compounds called thyroprotein has about the same effect as the thyroxin produced by the thyroid gland and offers some possibility in broiler production.

Investigations at the University of Maryland have shown that some strains of chickens grow faster when fed this compound. This increase in the rate of growth apparently results because the bird's natural secretion is somewhat de-

Section

ficient for optimum growth. Work at other experiment stations indicate that thyroprotein feeding may enable the birds to recover from coccidiosis more rapidly.

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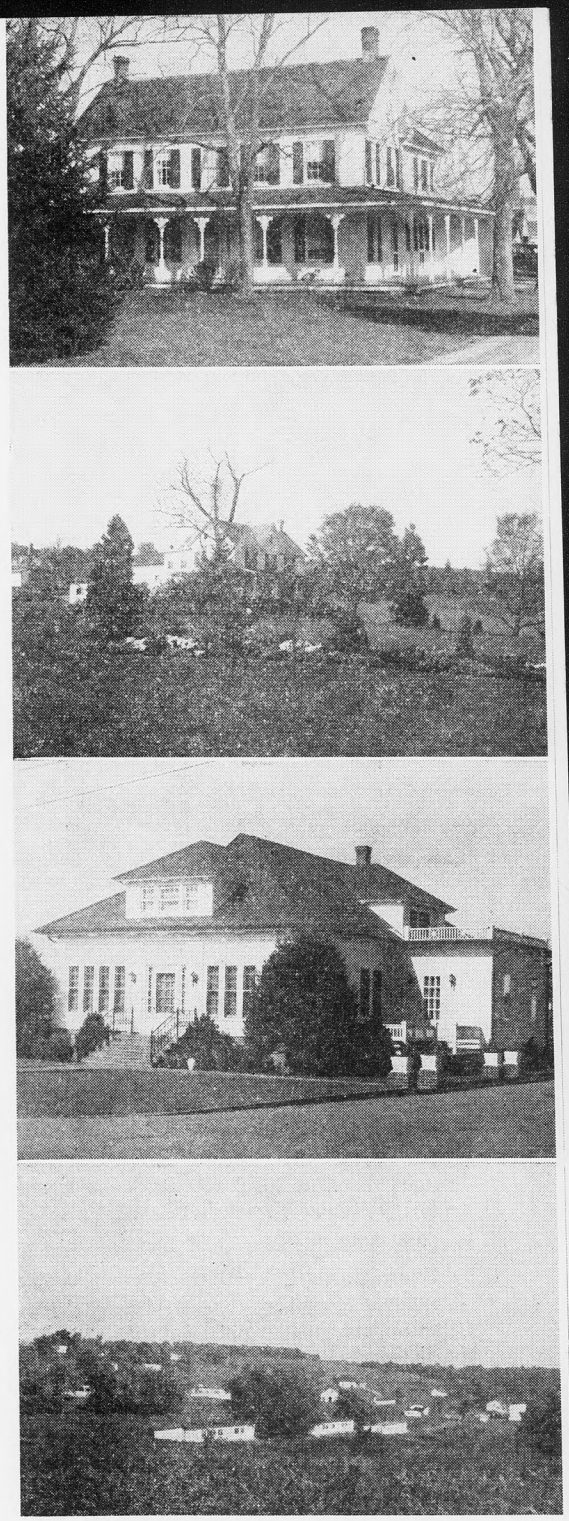

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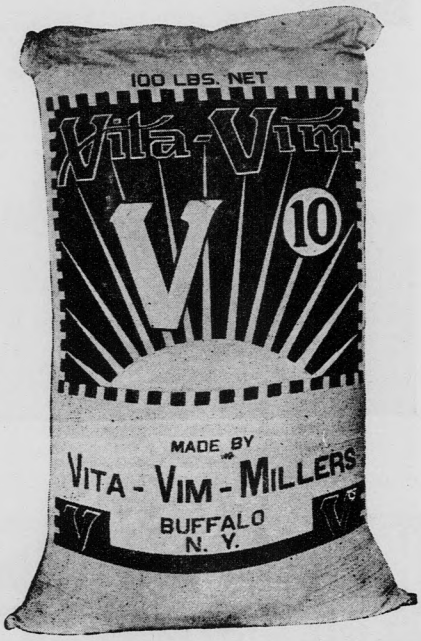

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10 YEARS OF RESEARCH HAS PROVEN V110

DEVELOPED for feeding chicks during the first two weeks. Recommended to be fed after first 24 hours of chick's life. No chick grains needed.
V-10 has been carefully proven by Vita-Vim Research. The value of this research has been verified by our customer's results. V-10 is the cornerstone of the Vita-Vim Feeding Program. Customers report producing 3 pound (average) broilers at 9 weeks. V-10 should be followed by VITA-VIM PULLET GROWER (for pullets) or VITA-VIM GROW FAT (for broilers) as the case may be.

Even though V-10 may seem costly per pound, only 8 ounces per chick is needed for the two weeks feeding period. V-10 includes all the vitamins, minerals and growth factors that science has proven of value. Here is a feed distinctly superior in its ability to convert feed into more meat and bone. It promotes faster, more efficient growth; in other words it has "anabolic" efficiency.

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AUTOMATIC FEEDERS IN THE BROILER HOUSE

By H. F. WILLIAMSON

Salisbury, Maryland

The most notable development of the past few years relating to equipment in the Broiler field has been Radiant Floor Heating and Automatic Feeders. The former has been weighed in the balance and found wanting in so far as the average broiler raiser is concerned. Does the fact that one or more growers have tried the Automatic Feeder and reverted to old style feeding mean that Automatic Feeders are only bright, impractical dreams?

A survey of the field shows new Automatic Feeders springing into being all over the map, indicating at least a healthy demand on the part of poultrymen. The difference between them, so far as fundamentals are concerned, would appear to be inconsequential. The one possible exception to this is a Delaware product which uses the grower's own feed troughs, passing a continuous pipe through the reel supports with openings in the bottom of the pipe through which the feed falls into the trough. The feed chain runs through the pipe. Thus, there is no contamination of the fresh feed.

So far as the chickens are concerned, they take to automatic feeding like ducks take to water, regardless of whether the operation is continuous or intermittent. Just as there are two schools of thought on old style feeding: those who favor keeping the troughs full of feed at all times and those who prefer periodic feeding: we have some automatic feeders which run all the time, and others which are operated at intervals by a time clock. Broiler raisers who favor the latter claim that the intermittent operation of the chain stimulates the interest of the chickens each time the chain starts up, thus encouraging them to eat more feed; whereas the chickens get used to constantly operating chain and are not so stimulated in the direction of increased feed consumption. We have seen no figures that would appear to factually confirm this theory.

To date we have found no one unwilling to admit the labor saving feature of automatic feeding, so long as the feeder is in working order. Also the feed appears to keep more free from contamination than is often the case with old style open trough feeding. However, as with all new devices, problems have arisen. Balancing the speed of the chain with the volume of the feed and the number and age of the chickens to be fed has proven to be no simple matter. Piling up of mash at the end of the run, or contrariwise some feet or yards of empty trough, are equally unsatisfactory. Mechanical failure is the other major cause of dissatisfaction. Parts either do not function properly or wear out too soon. One manufacturer uses bearing plates for the chain to prevent trough wear.

Since the chief problems associated with automatic feeders are purely mechanical, it would seem that these new poultrymen's helpers are here to stay. We can trust American manufacturing ingenuity to come up with improvements in course of time that will in all likelihood make automatic feeders routine equipment on most poultry farms.

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WHEN TO SELL BROILERS

By HAROLD SMITH

Assistant Professor, Dept. Agricultural Economics, University of Maryland

When the Del-Mar-Va broiler reaches the 3 to 3¼ pound weight class it is time for it to go to market. Beyond that weight unit costs remain the same. Profit per bird continues to increase, but at a decreasing rate as the birds approach a 4-pound average. On the other hand, birds sold under three pounds bring in considerably less profit. In fact, a study of 1947 and 1948 records showed that producers who sell at a 2½-pound weight stand less than a fifty-fifty chance of breaking even.

The heavier the bird becomes the more serious is the dollar loss if disease strikes the flock. Let us assume that broilers are selling for 25 cents per pound. For every 4-pound bird that dies the farmer is out $1.00. If the bird dies at a three-pound weight he is out only 75 cents. Assuming that the death rate is low, frequently the flock will go off feed as a result of disease. When this happens they lose weight rapidly. Loss of weight is often more serious with heavier birds than with lighter ones. The danger of disease is an important consideration in choosing the 3-pound mark as the critical point in deciding when to sell.

Occasionally, growers will find it advisable to sell their flocks at lighter weights to prevent excessive losses. The heat wave which struck the Del-Mar-Va area in the summer of 1948 was a prime example. Certainly, growers were justified in selling if their flocks were approaching a marketable weight, rather than run the risk of excessive losses. The times when it is economically feasible to sell at a weight under 3 pounds, however, are rare.

Feed Efficency a Good Indicator of Profit

Feed represents 75 percent of out-of-pocket costs in broiler production these days. It takes roughly 4 pounds of feed to produce a pound of broiler. Some growers can produce a pound of broiler with less than 4 pounds of feed, while others require considerably more. A three-pound bird produced on 10 pounds of feed is a goal which producers should strive for, and are frequently able to attain.

Feed efficiency is an important factor affecting broiler profits. As the amount of feed required to produce a pound of broiler increases, profits per bird decreases. This does not mean, of course, that birds shouldn't have all the feed they are able to eat. It does mean, however, that the grower should make every effort to get maximum gains for every pound of feed consumed by the flock.

The number one pointer in attaining efficient use of feed is that growers should buy a high quality chick, one which is pullorum free and is a meaty type. Much can be gained by feeding good quality feed. It is important that feed supplies be bought frequently, so that fresh feed is available. In order to attain rapid gains the birds must be kept healthy at all times. Proper ventilation, cleanliness and dry litter in the houses will help a great deal in maintaining a healthy broiler flock.

(Continued on Page 39)

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HOW MUCH BLOOD IN A CHICKEN?

By DR. C. S. SHAFFNER

Poultry Department, University of Maryland, College Park, Maryland

After reading the title you may say to yourself, "What difference does it make so long as the bird is healthy?" Well, until one day a year or so ago, we here at the University of Maryland felt the same way, too. Then we decided to do some research work on the problem of poor bleeding. Much to our surprise, we found that there just aren't any very good standards to determine how "well bled" a dressed bird is after dressing. The logical thought that follows then is to weigh the amount of blood lost under different conditions of killing. That is rather easy to do, but when you get through, you still don't know how much of the blood you have gotten out because you don't know how much there was to start with. Hence, we are back to the original question, "how much blood is there in a normal chicken?"

Because of the clinical importance of the amount of blood of humans, a good deal of work has been been done by the medical doctors on the subject, and techniques have been developed for determining blood volume. We modified one of these techniques so that it could be used on a small animal and began to determine the blood volume of new Hampshire chicks. These birds ranged in age from six weeks to adult stock. It soon became apparent that the amount of blood in a bird per pound of weight changes as the birds get older and that there is also a sex difference. When birds of either sex weigh about one pound, approximately ten per cent of their body weight is made up of blood. As the females get larger, there is somewhat less blood per unit of bodyweight until they reach a weight of about three pounds. At weights above three pounds there is a marked decrease in the amount of blood per unit of body weight. The blood of mature laying hens makes up only about five per cent of the body weight.

Now the situation in males proved to be quite different. As the cockerals mature there is only a slight decrease in the amount of blood per unit of body weight. In mature males weighing as much as nine pounds, approximately 7.5 per cent of the body weight is made up of blood. This sex difference is thought to be due to the fact that at sexual maturity the females begin to put on a lot of fat and fatty tissue doesn't seem to require much blood.

We know feel that with the aid of the curves calculated from this data, we can estimate rather accurately how much blood there is in a chicken, provided we know the age, sex, and weight.

—o—

Broiler breeding flocks should select birds based on early feathering. Main tail feather ½ inch long at ten days of age, with primary and secondary feathers evident at time of hatch and back coverage at eight weeks are basic factors in selecting for early feathering.

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NEW TRENDS IN CENTRAL HEATING FOR BROODING HOUSES

GEORGE D. QUIGLEY
University of Maryland

The labor and fuel features of central heating for brooding systems are sufficient to promote widespread interest in this type of equipment not only by broiler growers, but egg farmers and turkey producers as well.

A brief summary of the advantages of the various choices follows:

FUEL:

1. **Hard Coal** — when stoker fed it produces an even, easily managed fire, comparatively simple to clean and control. Very popular in Del-Mar-Va.
2. **Soft Coal** — is often the cheapest source of heat; stokers are satisfactory but flues must be cleaned more frequently than for hard coal; some clinkers encountered.
3. **Oil** — Labor saving and comparatively trouble free; the flexibility in meeting changing loads is wonderful; very popular in New England plants.
4. **Electricity** — Outlook speculative since electricity as a source of B.T.U.'s is relatively quite expensive in comparison with oil, coal, or gas.
5. **Gas** — Ideal fuel if the price permits.

HEAT TRANSMISSION:

1. **Hot Water** — is most popular method; pipes cost more than steam, flexibility good, and control of temperature is simple and easy.
2. **Steam** — initial cost less, but control within precise limits is more difficult than hot water; in many locations, hard water results in excessive boiler scale which reduces efficiency and is expensive to remove or prevent.
3. **Hot Air** — theoretically the ideal system when used in conjunction with steam or hot water "exchangers"; offers possibility of summer air conditioning by fans; should be installed in a reasonably tight building for best results; a little on the experimental side at present, but some of newer installations look very good. Worth watching carefully, and check on any increase in air-borne diseases as a result of blowing the air around.

METHOD OF APPLYING HEAT:

1. **Radiant Heat** — Wonderful brooding, but it looks as though simple means will have to be found to humidify; installation cost too high for many operators; insulate at outside edge of floor slab to keep the dandelions from blooming in January (excessive lateral heat loss.)
2. **Pipes Above Floor** — Installation cost about 33 1/3% of radiant heat; becoming more popular, especially in newer 40-foot-deep houses; provide nice roosting arrangement and floor draft control; seems good up to 250 feet from boiler with forced circulation. In Del-Mar-Va known as "Shenandoah System."
3. **Radiant Electric Ceiling Panels, Infra-red rays, etc.** regarded as too expensive for residential work, so considered expensive and speculative for brooder houses at present.

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WHEN TO SELL BROILERS

Having bought a quality chick, and having attained a good rate of growth by preventing disease, the grower is on the road to profit. Since individual producers have little control over the price of broilers, good management is essential to efficient production and broiler profits.

When to Sell Need Not Be a Problem

Much of the uncertainty in the broiler business is brought about by extreme price fluctuations in the market. These fluctuations may be caused by sudden changes in demand, or by speculation on the part of producers.

Hatcherymen, producers and businessmen alike are constantly trying to envision the future. Hatcherymen want to be able to speculate on how many chicks can be sold 21 days from the time eggs are put in the incubator, or how many chick orders will be cancelled because of a broiler price decline. Producers would like to know what the price of broilers will be 13 weeks from the day they fill their houses. Businessmen in the area are concerned every day in the year, because when the broiler business is low other business is low.

To date, no one has been able to consistently forecast broiler prices with any degree of accuracy. The experience of broiler growers has proven that as a rule it doesn't pay to hold on totheir birds too long in waiting for the price to go up. Producers may do well to consider the 3-pound bird as the critical point in deciding when to sell.

HIGH ENERGY RATION BRIEFS

From Hagerstown Panel — June 30, 1949

A high energy ration relies on ingredients, such as corn and wheat for energy levels and avoids such fibrous ingredients as wheat bran and alfalfa which are low in available energy.

—o—

Cornell experiments indicate advantages for the full twelve weeks' use of high energy rations in growing broilers.

—o—

When corn and wheat are cheap, a high energy ration need cost no more than a low energy ration.

—o—

Bareback broilers and feather picking may result from using some high energy rations, but these are due to other nutritional factors or to management practices rather than to high energy levels.

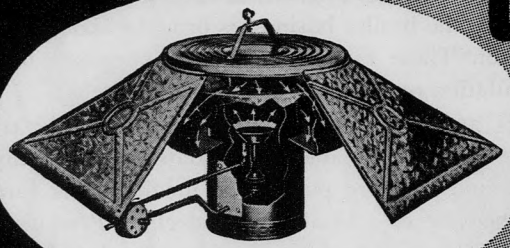
—o—

Broilers grown on high energy feeds may not make as large gains on wet feeding in finishing batteries as broilers grown on lower energy levels.

—o—

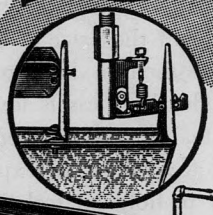
Protein levels and energy levels of a ration are not synonymous.

The Spotlight is on OAKES

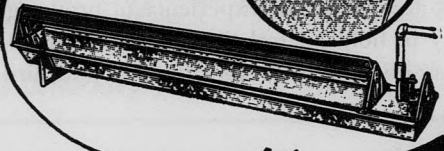


No. 1560-G

New GAS BURNING BROODER



No. 600



Burns Artificial, Butane or other Bottled (LP) Gas. Very economical to operate. 22½" heat radiating drum, insulated top. Enclosed burner—no fire hazard. Positive air circulation under canopy. No condensation—no wet litter. Burner easily accessible for lighting. Automatic heat regulator. Broods 450-500 chicks.

New AUTOMATIC WATERER

No. 600 New Automatic Watering Trough is 46½" long. Has 42" drinking space on each side. All brass positive 2-way valve. Weight of water in trough controls valve. Has 4 blade reel.

No. 3948-R Broiler Trough

No. 3948-R Trough is 48" long, 6¾" wide, 3" deep. Holds 19½ pounds feed. Adjustable legs. 4 blade revolving reel.

No. 503 Double Wall Fountain is equipped with brass spring value. Capacity 3 gallons.

No. 3948-R Trough, No. 600 Waterer and No. 503 Fountain are all made to order for broiler raisers.

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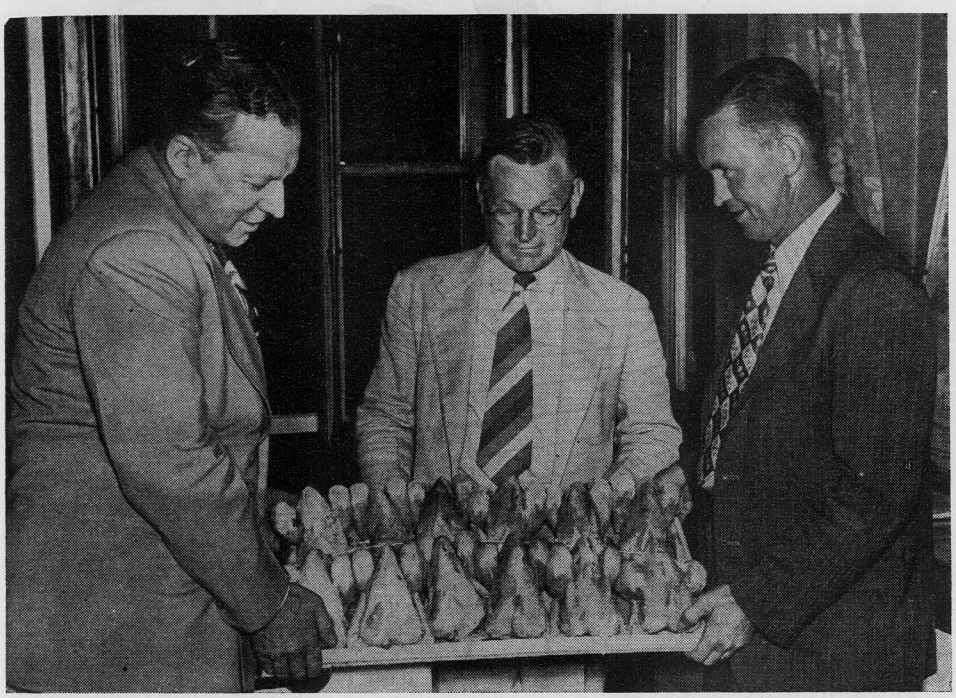
CHICKEN OF TOMORROW PROGRAM IN MARYLAND

By WADE H. RICE

Extension Poultry Husbandryman, Poultry Department, University of Maryland, College Park, Maryland



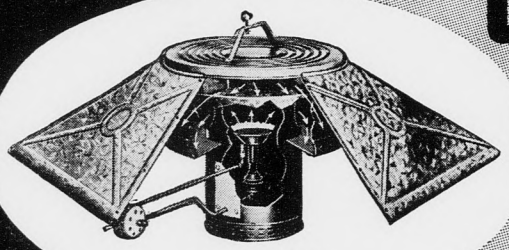
Maryland did not have a breeder in the National Chicken of Tomorrow Contest at the University of Delaware Substation at Georgetown in 1948, but fourteen entries staged a lively competition in the State Program in 1949. This was the start of a second round of State and Regional competitions to culminate in another National Contest in 1951 at a location to be selected by the National Committee. From the interest in the 1949 State Contest, Maryland breeders will push other states of the Southeastern Region to qualify one or more breeders for the National Contest in 1951.

One June 23 and 24, 1949, the Maryland breeder's competing flocks were visited by a Committee and scored for weight, mortality, feathering, and uniformity of size. On June 27, each breeder delivered fifteen selected cockerals from his original one hundred chicks to the University of Maryland Poultry Department as his carcass entry. These fifteen birds were dressed and judged by a Committee on June 28, frozen, and then transported to Hagerstown for display and awarding of prizes at the State Poultry Council's Banquet on June 30.

The crossbred entry of L. B. MacDowell, Salisbury, with a score of 84.28 was first, with Bradley's Hatchery of Easton second on a Barred Cross entry, and third with a New Hampshire entry. M. Howard Devilbiss of New Windsor was

(Continued on Page 50)

The Spotlight is on OAKES



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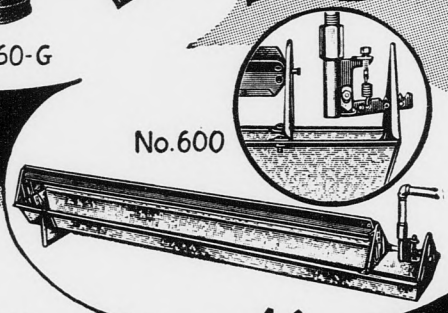

No. 600

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No. 3948-R Broiler Trough

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No. 503 Double Wall Fountain is equipped with brass spring value. Capacity 3 gallons.

No. 503

No. 3948-R Trough, No. 600 Waterer and No. 503 Fountain are all made to order for broiler raisers.

OAKES line is complete to meet the needs of every poultryman, both small and large operator. Entire chick equipment for the brooder room, everything for the laying house, plus a full line of battery brooders.

Get acquainted with OAKES M. I. Plan, the plan that is helping thousands of poultrymen to increase profits. Send for free copy of the M. I. Plan booklet and new 1950 catalog.

OAKES "Sanitized" POULTRY EQUIPMENT

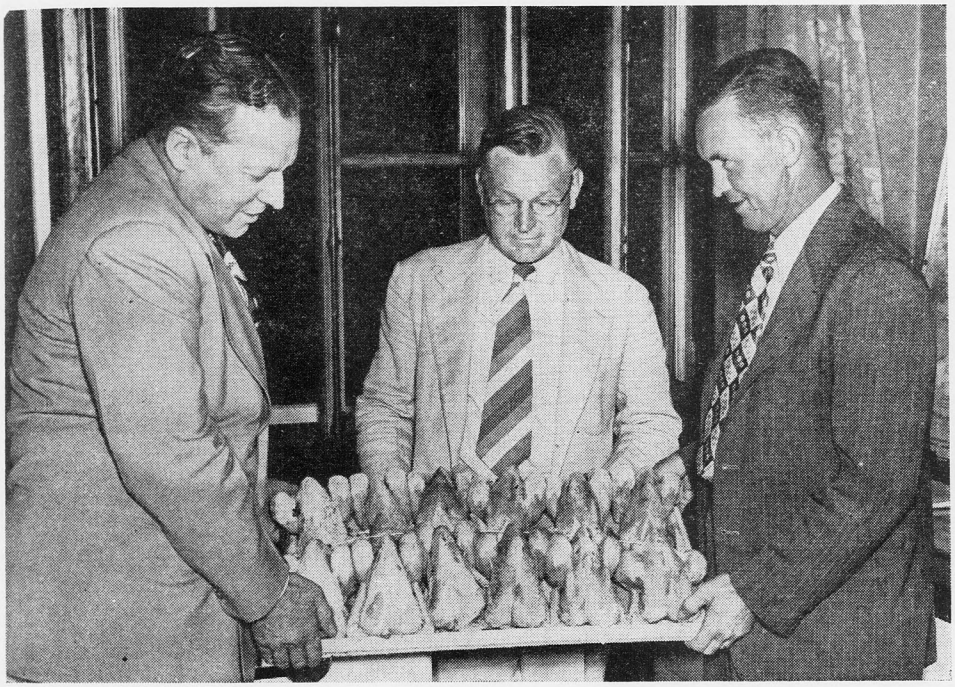
THE OAKES MFG. COMPANY

Box 1107 **TIPTON, INDIANA**

CHICKEN OF TOMORROW PROGRAM IN MARYLAND

By WADE H. RICE

Extension Poultry Husbandryman, Poultry Department, University of Maryland, College Park, Maryland

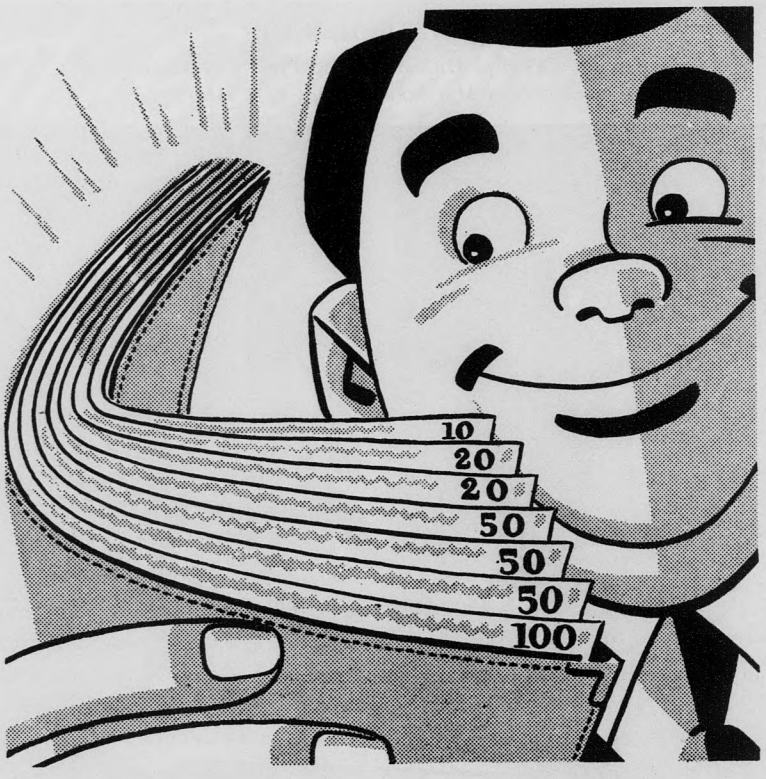


Maryland did not have a breeder in the National Chicken of Tomorrow Contest at the University of Delaware Substation at Georgetown in 1948, but fourteen entries staged a lively competition in the State Program in 1949. This was the start of a second round of State and Regional competitions to culminate in another National Contest in 1951 at a location to be selected by the National Committee. From the interest in the 1949 State Contest, Maryland breeders will push other states of the Southeastern Region to qualify one or more breeders for the National Contest in 1951.

One June 23 and 24, 1949, the Maryland breeder's competing flocks were visited by a Committee and scored for weight, mortality, feathering, and uniformity of size. On June 27, each breeder delivered fifteen selected cockerals from his original one hundred chicks to the University of Maryland Poultry Department as his carcass entry. These fifteen birds were dressed and judged by a Committee on June 28, frozen, and then transported to Hagerstown for display and awarding of prizes at the State Poultry Council's Banquet on June 30.

The crossbred entry of L. B. MacDowell, Salisbury, with a score of 84.28 was first, with Bradley's Hatchery of Easton second on a Barred Cross entry, and third with a New Hampshire entry. M. Howard Devilbiss of New Windsor was

(Continued on Page 50)



PROFIT PER 1000 BIRDS

That's Why 140 Million Broilers a Year
Are Grown on Purina Broiler Chow

Why?

. . . High feed conversion — 1 to 3 or better on the Purina Plans.

. . . Quality meat — good pigment.

. . . Fast growth — 3 lb. birds in about 10 weeks.

SEE YOUR PURINA DEALER WITH THE CHECKERBOARD SIGN

A 5-3-3 PROGRAM FOR BROILER PRODUCERS

By WADE H. RICE
Extension Poultry Husbandman

With all commercial broiler areas in the U. S. experiencing greatly expanded production in -949 over 1948, broiler producers seem destined to soon face a competitive situation in which efficient production and effective marketing programs will determine which producers and areas will maintain their business at present or higher levels of production.

The 5-3-3 program is both a goal and a measuring stick for efficient production, which when attained by a producer will place him in a favorable position to face the decreasing profit margins predicted by some for the future.

The 5 stands for **5% maximum mortality.** This can be attained only through securing top grade, fastgrowing chicks carrying 3-4 week immunity to Newcastle disease, and brooding practices and sanitation designed to give the chicks the best growing environment. The fight against coccidiosis especially during the critical period of 5 to 9 weeks of age, and the possibility of an outbreak of Newcastle after the 3-4 week immunity period is over requires an eagle eye and prompt use of the most effective control measures. Nitrofurazone and sulfaquinoxaline treatments for coccidiosis and vaccination for Newcastle disease are the most effective direct control measures known at this time for these ailments. However, these measures may not always prove effective, and should not be regarded as substitutes for skilled feeding practices nor good management designed to keep birds on feed and growing. A lot of pluck in close supervision of the chicks, with a lot of "know how" gained from experience, is the road to a mortality loss of 5% or less to 10 weeks of age.

The first 3 stands for **3 lb. average at 10 weeks of age.** A first class ration high in available energy, together with skilled feeding and good house management, and fast growing chicks are all important contributors to getting this average. There are many good high energy broiler rations available today, and further developments in nutrition promise even better growing rations for the future.

The second 3 stands for **feed efficiency** or **3 lbs. of feed per pound of gain to ten weeks.** Only the combination of rations adequate in available energy, skilled feeding, elimination of feed wastage in feed rooms and in the house, and effective control of disease and mortality can give a feed efficiency of 3 or less under commercial broiler conditions.

Feed costs represent 60 to 65% of present production and marketing costs of broilers, and no producer can afford to face the future with confidence if he doesn't carefully watch his feed efficiency factor.

The 5-3-3 program may seem to be a pipe dream to some producers, but it or a similar yardstick is fast coming in use among commercial broiler growers who expect to meet future competition with success.

—o—

Fiber content on the feed bag or tag is the poultryman's guarantee of high energy feed in addition to list of ingredients used.

SUPREME BRAND CONDENSED WHEY

(68% SOLIDS)

1. Self Feeding.
2. Will not Mold.
3. All Whey, nothing extracted.
4. High Lactosed. (43%).
5. Packed in 50 lb. and 100 lb. Drums (with Liners)
6. Sold by Your Local Dealer Only.
7. Warehouse Stock at Seaford, Delaware.
8. Reasonably Priced.

We also have stock at Seaford of

Supreme Brand Dried Skimmilk

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SEAFORD Phone: Seaford 3242 DELAWARE

LADINO CLOVER PASTURE SAVES FEED

In Ohio Station experiments, a comparison of ladino clover, blue grass, and run of farm pastures for raising Leghorn and Rhode Island Red pullets, the ladino clover proved superior. Leghorns on ladino clover made 11% greater growth on 12% less feed than similar pullets on blue grass, while Rhode Island Red pullets made 9% faster growth with 12% less feed on ladino than similar pullets on run of the farm ranges. In these experiments, it has been found that a ration of corn or wheat free choice and a mash composed of 90 lbs. coarse ground corn, 6 lbs. bone meal, 2 lbs. each of oyster shell or limestone, granite or gravel grit, and salt gave satisfactory growth on ladino pasture. This is quite a saving in feed cost of raising pullets.

—o—

Source of fiber is important to the digestibility of the ration. Oats contain a high energy kernel even though the hulls are high in fiber.

—o—

It is unwise to modify high energy ration formulas by substitutions by the average poultryman or the ration will be incomplete.

—o—

A high energy ration is not necessarily a good ration. Many factors besides energy levels are of equal or greater importance.

The GLASGOW & DAVIS Co.

Fruit and Produce Hauling

Refrigerator and Ventilator Trucks

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SALISBURY, MARYLAND

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BROILER

From Start to Finish —

Starter, grower and finisher all in one package — th's Pillsb lest, easiest feeding program you can find. And th high-e fast. Your work will be easier, your profits better — h Pillsb

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ER RATION

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e — th's Pillsbury's Best XXXX Broiler Ration. The simp-
And th high-energy ration piles on pounds of poultry meat
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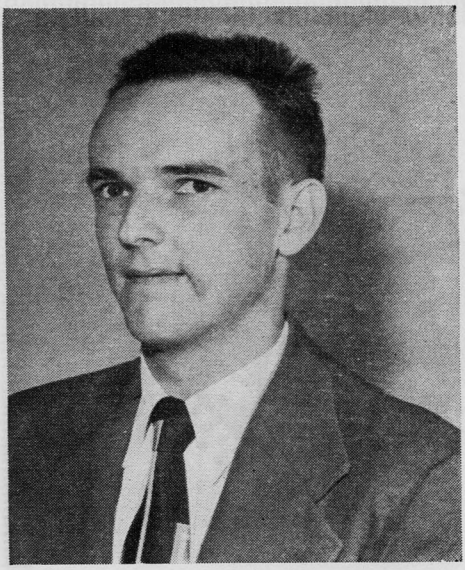

Perry F. Twining, Extension Poultry Specialist on the Eastern Shore, devotes his time to broiler producers and cooperates with County Agents and their Assistants in helping to improve conditions in the broiler industry. He also aids in 4-H and F. F. A. projects. When the broiler house at the Substation at Salisbury is completed, Mr. Twining will supervise the experiments and demonstrations carried on there.

Russell H. Hinds, Jr., Extension Poultry Specialist for Western Maryland(devotes his time to market egg producers, turkey growers, and supervises R. O. P. work carried on by poultry breeders. He is making a study of laying houses and cooperates with farmers and commercial poultrymen in keeping records of feed consumption and egg production. 4-H and F. F. A. projects receive his attention.

for extra values at no extra cost—

CURBAY B-G

(dried molasses fermentation solubles)

A low-cost alcohol fermentation product. Contains vitamins of the B-G complex plus riboflavin, pantothenic acid, biotin, nicotinic acid, vitamin B_6, and choline.

This is the fermentation solubles ingredient which is used in the Connecticut Broiler Ration which is now enjoying wide success.

SPECIAL LIQUID CURBAY

(condensed molasses distillers' solubles)

This concentrate, derived from yeast-fermentation of blackstrap molasses, does an outstanding job in hog and dairy rations. Contains all vitamins and minerals normally found in cane molasses.

U. S. I. Brand RIBOFLAVIN PRODUCTS

These are designed to fit the specific needs of all types of growing rations.

U. S. I. Brand DL-METHIONINE

This low-cost *essential* amino acid is finding increased use in high energy rations and concentrates containing corn and soy bean meal. Write now for the story of "Proteins and Amino Acids in Animal Nutrition" — an exclusive U.S.I. publication.

And a new APF product —

U.S.I. Animal Protein Factor Supplement!

This new product, obtained from a primary bacterial fermentation, is specially designed to carry guaranteed amounts of Vitamin B_{12} — along with unidentified factors of the APF complex. It is available in highly concentrated form, convenient for use in your chicken and hog feed formulations.

For your free copy of an exclusive U.S.I. booklet on recent nutritional developments, with particular emphasis on Vitamin B_{12} and the APF complex, write U. S. Industrial Chemicals, Inc., 60 East 42nd St., New York 17, N. Y.

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START YOUR CHICKS

Bestof All WAY

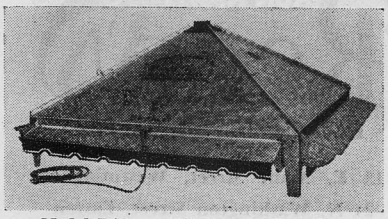
REG. U. S. PAT. OFF.

Model B735 — 5-Deck Starter

IN BATTERIES or ON THE FLOOR

For meat or eggs start chicks with Beacon *"Bestof All"* brooders and raise them better at lower cost. Simply plug into any 110 volt electric outlet; set your thermostats for the right temperature; turn your chicks loose and let them grow.

Send for Free Catalog of Complete Line of Poultry Equipment



Model B12 — 60" Canopy Brooder

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JOE BATTLES

BATTLES Specialized NEW HAMPSHIRES

Special for

MEAT— EGGS—

BATTLES FARMS

You'll get better results with Battles Hamps because they've been especially bred to fit your needs. Whether you want meat or eggs we have a type of Hamps bred specifically to give maximum results. Our two types (see below) have proven profitable on hundreds of farms.

MASS. — U.S. APPROVED — PULLORUM CLEAN

Battles Meat-Type Hamps put on weight quickly, feather rapidly, have premium meat quality—best for broilers and roasters.

Battles Egg-Type Hamps develop into healthy pullets that lay large eggs at a steady, high rate. Proven at Storrs—(see contest records).

Order the type to fit YOUR needs—you'll receive big, husky, quick-growing chicks. All breeders are—

Reserve yours soon! Write for catalog describing these specialized New Hampshires.

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For Reliable

POULTRY REMEDIES

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Drug Store Needs

RUN RIGHT TO Read's

"Drug Stores Worthy of Your Confidence"

15 E. Main Street, Westminister
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You'll See Why
BREEDING
PAYS
When You Raise

COBB'S
Pedigreed
CHICKS

The Chicks with the High I.Q.

It's true — the factors which build meat profits are developed through breeding. Only in chicks developed under a consistent, definitely aimed breeding program can you be sure of livability, fast growth, even feathering and the meat quality that means top profits.

COBB'S NEW HAMPSHIRES

are the result of years of trapnest, progeny test breeding—breeding aimed to select the families that have and that transmit the qualities you want today. Try Cobb's New Hampshires for profits you will appreciate.

COBB'S PEDIGREED CHICKS, Inc.
Robert C. Cobb Concord, Mass.

— Represented in Del-Mar-Va by —
N. E. CALHOUN ..... Ocean View, Del.
E. F. TOWNSEND ..... New Church, Va.
HELEN CARVER HODGES .... Marion, Md.

CHICKEN OF TOMORROW PROGRAM IN MARYLAND

fourth, and Gsell and Truslow of Chestertown, fifth; each with entries of New Hampshires.

In the above photo, left to right, Mr. Roland White, Supt. of Baltimore unit of A. & P. Stores, Wade Rice, Extension Poultry Husbandman, and Allen M. Bradley of Easton, one of the winners, examine one of the winning lots of dressed birds at Hagerstown.

To qualify for the Regional and National contests in 1950 and 1951, Maryland breeders will hatch their birds about February 27 and deliver their sample fifteen birds about May 23 to a location to be announced by the State Committee about January 1.

The objective of this program, sponsored by the A. & P. Tea Company, is to develop meatier chickens to meet a discriminating consuming public.

The response of poultry breeders and the interest of the consuming public in the Chicken of Tomorrow Program has exceeded the expectations of H. C. (Doc) Pierce of the A. & P. Tea Co.'s Poultry Division who originated the idea.

—o—

Elimination of roost and dropping boards in laying houses is increasing, but the change involves adjustments in litter management to meet new problems which arise.

CHAMPION CHICKEN COOK

1st PRIZE WINNER
1949 National Chicken Cooking Contest
July 13, 1949 — Salisbury, Maryland

DELMARVALOUS BROILED CHICKEN

1 Young chicken weighing 2-2½ lbs. dressed
2 tsp. salt
¼ tsp. black pepper
½ tsp. paprika
melted butter or margarine
Granulated sugar
1 lemon

Split chicken in half and wipe dry as possible. Break joint and remove wing tips to enable easy handling on plates.

Rub surface well with cut lemon, squeezing to obtain sufficient juice. Sprinkle with mixture of salt, pepper, and paprika. Coat well with melted butter and sprinkle lightly but uniformly with granulated sugar. Lay chicken on broiler pan (not rack) skin down. Place in broiler oven as far from heat as possible for about 10 minutes to allow seasonings to penetrate. Then raise to within 4 inches of heat. Keep heat low to broil slowly and turn and baste occasionally to secure even browning. About 35 minutes will be required to cook this size chicken evenly. When no pink is visible at bone of drumsticks, the chicken should be done.

Through the cooperation of the Maryland State Poultry Council and this publication, I want to extend my congratulations to the leaders of the Delmarva Chicken industry in staging their Annual Chicken Festival and in making possible the first National Chicken Contest held last year in Salisbury, Maryland. It is gratifying and pleasant to be living in a community which is so aggressive and cooperative in further developing its major industry. These promotional efforts help consumers and housewives all over the nation learn more about the economical and efficient preparation of their chicken dinners.

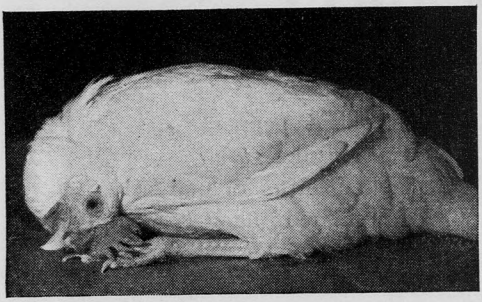
The Chicken Cooking Contest, as it materialized, was, I believe, an even greater success than its originators dared hope. Everyone who had any part in the Contest caught the spirit of the occasion completely and cooperated perfectly. To me, personally, it was the thrill of a lifetime. To be the first winner of the first National Chicken Cooking Contest was a pleasure beyond my ability to express. I am grateful for having had the opportunity of participating as well as for the many courtesies shown during the Contest. I am happy to be afforded this means of passing on my recipe to anyone who may be interested.

MRS. A. L. KARLIK
205 Monticello Avenue
Salisbury, Maryland

POSITIVE PROTECTION *against* ALL THREE —

1. NEWCASTLE
2. TRACHEITIS
3. FOWL POX

through immunization with



Newcastle Disease converted this promising pullet into a total loss. Vaccination with Vineland Live Virus Newcastle Vaccine provides complete immunity from this disease.

VINELAND VACCINES (Chick Embryo Origin)

Because they are Biologically Pure and Uniformly Potent, they are used regularly by

(1) 165 STATE AND FEDERAL INSTITUTIONS IN THE UNITED STATES
(2) 74 POULTRY COOPERATIVE ASSOCIATIONS FROM COAST TO COAST
(3) 55% OF ALL THE R.O.P. BREEDERS OF AMERICA

If immunization with Vineland Vaccines is considered so important by Government agencies and the most progressive breeders in the industry, it certainly is deserving of your serious consideration.

Vineland Vaccines are produced under the highest ethical and technical standards of laboratory control.

The Vineland Poultry Laboratories are under the direct supervision of Dr. Arthur D. Goldhaft, who has specialized in poultry diseases for over a third of a century and is a nationally recognized authority. He is assisted by a staff of four able Veterinarians all experienced in poultry pathology, and a group of technicians working in laboratories, poultry houses and experimental buildings, covering more than 35 acres of property.

With everything concerning production thus under rigid scientific control, uniformity of supreme quality is assured.

Hatcherymen and Breeders must remember that Purchasers Insist on Chicks from Flocks Immunized Against Newcastle Disease

Immunize all your breeders with VINELAND LIVE VIRUS NEWCASTLE DISEASE VACCINE as well as with our TRACHEITIS and FOWL POX VACCINES. This will insure you against mortality from these diseases and loss of egg production liable to result from unexpected outbreaks. Further, it will enable you to offer chicks which poultrymen can buy with confidence.

VINELAND LIVE VIRUS NEWCASTLE DISEASE VACCINE

We were the first to receive a Federal permit to manufacture Chick Embryo Origin LIVE VIRUS Newcastle Vaccine. The Dr. F. R. Beaudette strain which we use is so mild that vaccinated birds feel little shock, yet assures complete immunity which only a LIVE VIRUS makes possible.

VINELAND TRACHEITIS VACCINE

Prescribed for vaccination of young birds, whether intended for broilers, market egg producers or breeders. We recommend routine vaccination at six weeks. Or if this has been neglected, emergency vaccination when Tracheitis threatens or breaks out nearby.

VINELAND FOWL POX VACCINE

Prescribed for routine vaccination of young birds. It may be administered at the same handling with the Tracheitis Vaccine.

VINELAND PIGEON POX VACCINE

Prescribed for emergency vaccination of laying flocks when threatened with Fowl Pox. This vaccine is so mild that it will not interrupt egg production, and also may be used for the immunization of broilers.

WIPE OUT PULLORUM TOO

No hatcheryman or breeder should be satisfied with less than 100% pullorum free flocks. Nothing less is safe.

VINELAND STAINED ANTIGENS K FORMULA also K POLYVALENT

Precision products that give dependable results.

Write for Price List featuring complete line of Vineland Poultry Biologics, Drugs and Disinfectants.

FREE Handbook on Poultry Disease Control with special attention to the prevention of Newcastle Disease, Tracheitis, Fowl Pox and Pullorum. Write today for your copy.

VINELAND POULTRY LABORATORIES

Box 70, Vineland **New Jersey**

"VACCINATION Is the First Step in Poultry SANITATION"

BROILER CHEEPS

The day of built-up litter for broilers is here. One Delmarva grower has his fourth lot of broilers in the houses on top of litter accumulations of three previous lots. Better quality birds and more efficient feed utilization have been secured.

—o—

University of Florida experiments showed that best weight gains and best feed efficiency were obtained when broilers were given one square foot floor space per bird and outside range in addition.

—o—

A survey by Virginia Extension Service in Rockingham County, Virginia, shows a greater feed efficiency in broilers allowed access to range than in those confined throughout the growing period.

—o—

Research at the Ohio Station (1947) showed that granite grit fed to pullets made a saving of 7½% in feed and speeded growth by 6%. Shenandoah broiler growers also point out greater profits from broilers when fed at least 400 lbs grit per thousand broilers for the growing period.

—o—

Radiant heat, involving heated concrete floors, is proving a problem for changeable weather due to time required for floors to heat up in cold evenings or cool off in warm mornings, despite other advantages of this type of heating.

—o—

Oregon State College reports depressed growth of chicks on a ration containing more than 5% alfalfa meal.

—o—

The use of electric heat lamps for brooding chicks is under study at many places. It appears probable that new developments in their use for chick brooding are imminent, especially for areas with low electric current rates.

—o—

Higher protein rations call for higher water intake.

—o—

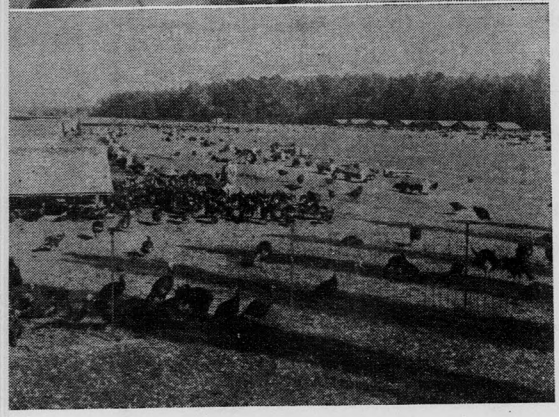
Waterers located so hens can drink from the floor rather than hop up to the water level result in hens drinking more water and laying more eggs.

—o—

Benefits of feeding high energy feeds in summer are reduced as compared to cooler months as with any other ration.

—o—

High energy rations for the early growth of laying pullets or breeding turkeys are economical.



Famous Maryland Turkeys at "Home on the Range"

Turkey

WHAT'S NEW ABOUT THE "ANIMAL PROTEIN FACTOR"

By Dr. GERALD F. COMBS
Poultry Dept., University of Maryland
College Park, Maryland

Animal protein concentrates have long been recognized as important ingredients in poultry rations. Much experimental work has been conducted in order to determine the nutritional basis for the superior feeding value of such concentrates as compared to vegetable protein concentrates. By 1944 it was recognized that, in addition to important quantities of calcium, phosphorus, riboflavin, and certain essential amino acids, animal protein concentrates contain an unidentified factor or factors which is required for rapid growth of chicks and normal hatchability. This unknown factor was named the "Animal Protein Factor" because of its common occurance in animal protein concentrates, such as fish meal, meat scraps, condensed fish solubles dried skim milk, liver meal, and crab meal.

In April 1948 the isolation of a new vitamin (vitamin B_{12}) was announced by the Merck Laboratory. In addition to being important in the treatment and prevention of pernicious anemia in humans, vitamin B_{12} is required for rapid growth of chicks receiving rations containing soybean meal or other plant protein concentrates as the only supplementary sources of protein. This vitamin is also required for normal hatchability and constitutes the most important part of the "Animal Protein Factor."

Section

However, research work conducted in the Poultry Department at the University of Maryland revealed that still another unidentified factor, in addition to vitamin B_{12}, is required for rapid growth of chicks fed such rations. This new unidentified factor is present in dried whey, dried brewers' yeast, and certain liver preparations. More recently Cornell University has reported similar observations, except that their results indicate that two unidentified factors are involved. These workers report that dried brewers' yeast and fish meal contain both of these factors while dried whey and certain liver preparations contained one of them. These results suggest that the "Animal Protein Factor" is a complex consisting of two unidentified substances in addition to vitamin B_{12}. All of these are required for rapid growth in the chick.

Certain soybean oil meals appear to be low in these unidentified factors while others may contain appreciable quantities. This may explain why the addition of vitamin B_{12} to certian practical type rations containing soybean meal results in growth of chicks equal to that obtained by the addition of animal protein supplements.

At present vitamin B_{12} concentrates, prepared by means of bacterial synthesis or fermentation, are available in quantities sufficient for use in practical poultry rations. Most of these are called "Animal Protein Factor" or "APF" concentrates, and some appear to contain at least one of the unidentified chick growth factors. The use of such concentrates to replace part of the animal protein supplements in practical rations is considered highly desirable since animal protein supple-

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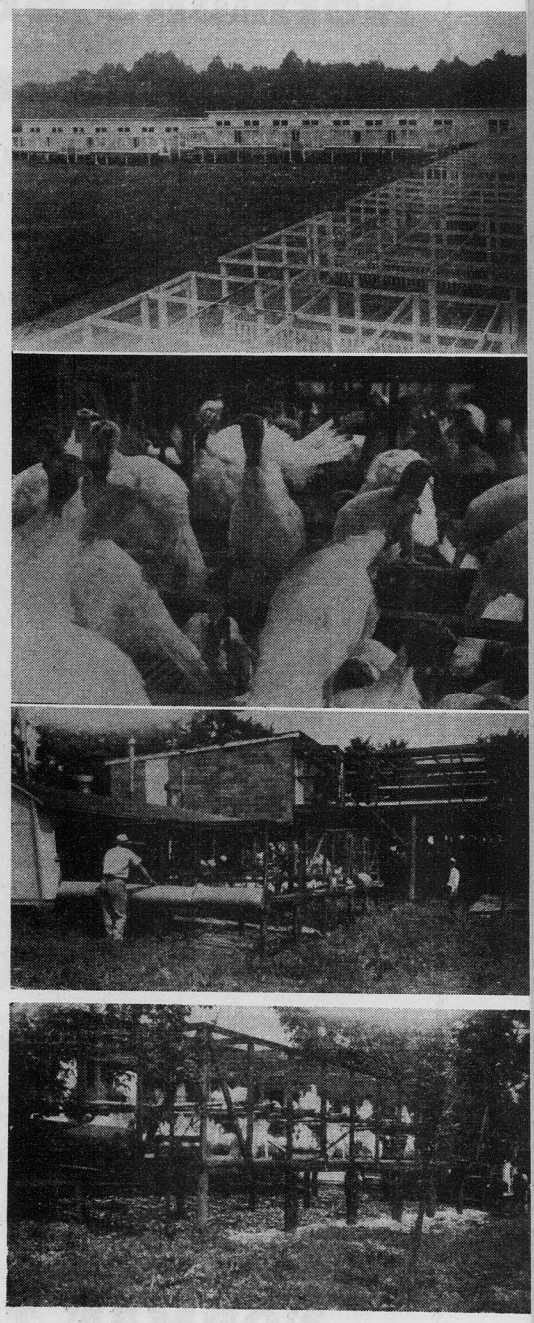
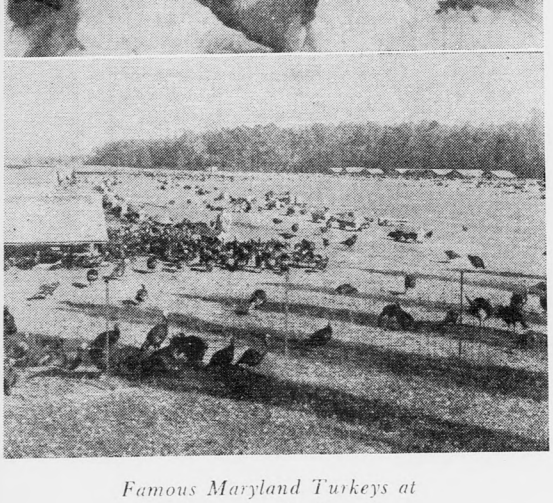


Brooding and Rearing Pens of Maryland Turkey Growers



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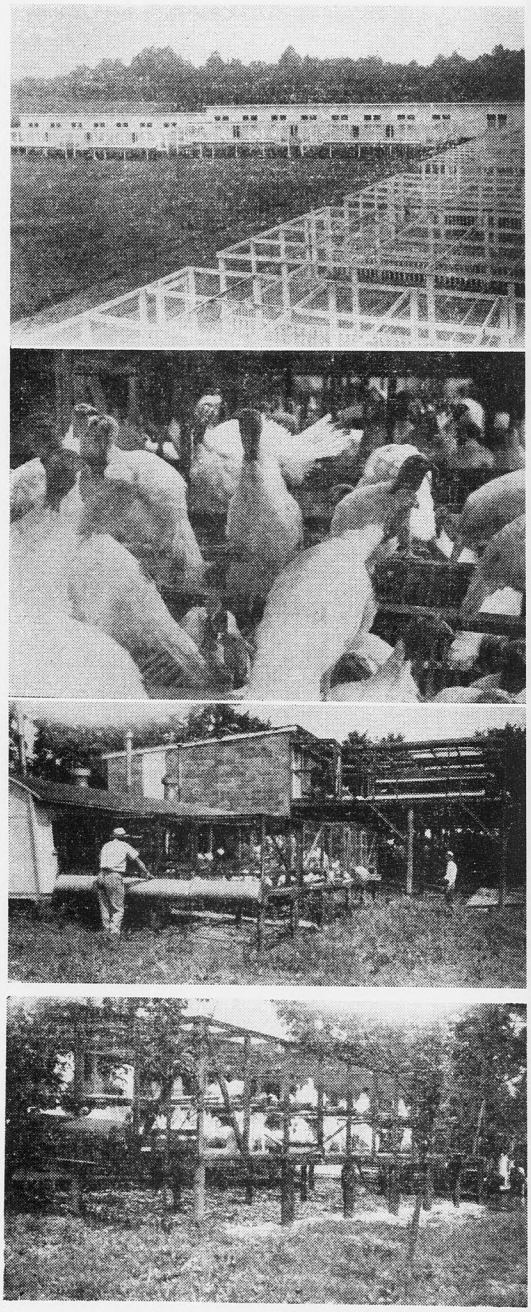

Brooding and Rearing Pens of Maryland Turkey Growers

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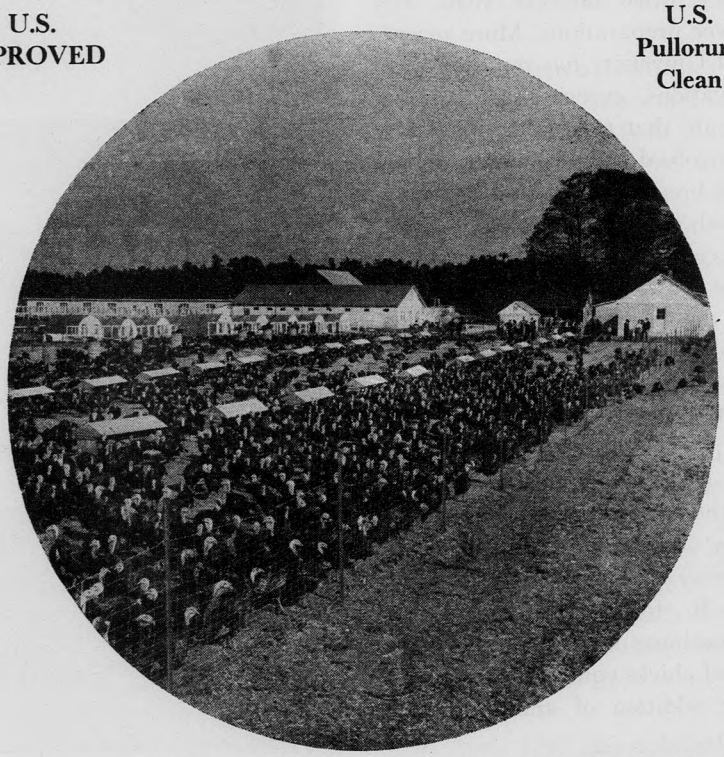

The famous NORMAN strain of Broad Breasted Bronze Turkeys on Sunday parade. Visitors in background typical of Sunday afternoons.

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- **LOOK to NORMAN for "CLEAN", Strong, Healthy poults.**

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NORMAN TURKEY FARM

Charlotte Hall, Maryland

HOW MUCH SHALL I CHARGE FOR MY TURKEYS?

By RUSSELL H. HINDS. JR.
Extension Poultry Specialist, University of Maryland
College Park, Maryland

Many turkey producers are faced with the question of price when selling dressed birds. The live market price can be readily obtained through the government price reporting services, local newspapers, and radio station. However, the N.Y. dressed (blood and feathers removed), and eviscerated prices are not generally given. For this reason it is quite helpful for the producer to know how to figure these prices from the live bird quotations which he can obtain. Two figures are essential in determining the price. First, the loss in weight of the bird from live to N.Y. dressed or eviscerated, and second, the cost of processing plus any additional expense involved, such as packaging.

The following table will supply some of the needed information for determining price:

BREED & SEX	Fasted Live Wt.	% Dressed Wt. of Live Wt.	Dressed Wt. in Lbs.	% Eviscerated Wt. of Live Wt.	Eviserated Wt. in Lbs.
Broad Breasted Bronze					
Males	24.0	90.5	21.7	74.9	17.9
Females	15.5	91.5	14.2	76.9	11.9
Beltsville Whites					
Males	15.0	89.0	13.4	72.5	10.9
Females	9.0	88.0	7.9	72.2	6.5

Taken from Jull's "Raising Turkeys, Ducks, Geese, and Game Birds." Adapted from data of Harshaw, Kellogg, Rector, and Marsden, U. S. Dept. of Agriculture, 1943.

Let us take examples to determine the price we must charge in selling a bird either N.Y. dressed or eviscerated to cover the shrinkage loss plus the added cost of processing. Assuming we have a Broad Breasted Bronze hen weighing 15.5 pounds and selling at $.40 per pound live weight, we would receive $6.20 for the bird. When we N.Y. dress this same bird, it will weigh approximately 91.5% of the live weight or 14.2 pounds, as shown in the table. Dividing $6.20 by 14.2 pounds, we find $.43 per pound must be charged to make up for the dressing shrinkage alone. For purposes of illustration, let us say the additional cost of dressing, packaging, etc. amounts to $.50 or 3.2 cents per pound, making a total of $6.70. Now, dividing $6.70 by the 14.2 pounds of turkey we have to sell, we find the price per pound must be $.47 for the N.Y. dressed bird. This covers both the shrinkage and processing costs. At $.47 per pound, N.Y. dressed, we make the same amount on the bird as though we sold it at $.40 per pound live.

For the eviscerated price, the same system is used. A 15.5 pound live hen will eviscerate to weigh 76.9% of the live weight or 11.9 pounds. Dividing $6.20 by 11.9, we find $.52 peer pound must be charged to make up for the shrinkage due to evisceration alone. Again for illustration, let us assume the cost of evisce-

(Continued on Page 58)

ration to be $.62 or 4 cents per pound. We must add $.62 to our original price, making a total of $6.82. Now, dividing $6.82 by 11.9 pounds of eviscerated turkey we have to sell, we find we must charge $.57 per pound to cover both shrinkage and processing costs and still receive the same amount for the bird.

This system can be used by the producer to determine the price to charge on retail sales. The loss in weight due to the dressing and eviscerating operations will follow closely with those given in the table. The additional costs which must be added to cover the labor in dressing and eviscerating, plus the cost of packaging, handling, freezing, etc. must be determined by the individual for his operation and added to the original price.

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RECOMMENDED TURKEY MASHES

By DR. G. F. COMBS

Professor, Poultry Nutrition, Poultry Department

University of Maryland, College Park

Ingredients	All-mash turkey starter (up to 4 weeks)	All-mash[2] turkey grower (4-8 weeks)	Turkey grower with grain[1] (after 8 weeks)	Turkey breeder mash fed with grain[3]
	Ibs./ton	*Ibs./ton*	*Ibs./ton*	*Ibs./ton*
Ground yellow corn	415	505	550	350
Ground wheat				200
Wheat std. midds.		400	480	200
Wheat flour midds.	300			
Wheat bran				200
Ground heavy oats	200	200	200	250
Soybean oil meal	600	350	250	160
Fish meal	100	100		100
Meat Scrap	100	100	100	100
Dried skimmilk	75	50	100	80
Dried whey	40	50	60	
Dried brewers' yeast	50	50	50	60
Dried distillers' solubles				80
Alfalfa meal	50	100	100	100
Steamed bone meal	20	30	40	50
Ground limestone	30	20	30	30
Iodized salt	10	10	20	20
Manganese sulfate (feeding grade, 67% MnSo4)	0.75	0.75	1.0	1.0
Fish liver oil (400 D, 2000 A)	10	10	20[4]	20[4]
Riboflavin supplement to supply				50 mg./100 lbs.
Calculated Analysis:				
Crude protein, %	28.2	23.2	20.0	21.3

[1]Scratch grain may be fed free choice starting at 12 wks. Oyster shell or other source of calcium should also be supplied at that time.

[2]The all-mash starter and the turkey grower to be fed with grain may be mixed together and fed during the period from 4-8 weeks of age in order to reduce the number of rations required.

[3]Approximately equal parts grain and mash. Oyster shell or other calcium supplement should also be fed free choice.

[4]Omit at least two months before marketing. D-activated animal sterol should then be added to supply 1600 A.O.A.C. units of vitamin D per lb.

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ments, such as fish meal, liver meal, and condensed fish solubles, are in short supply and expensive. This will permit the use of greater quantities of plant protein concentrates and will lower the cost of poultry feeds.

Since other unidentified factors are involved, it is recommended that starting broiler and breeder mashes contain about 5% of a good quality animal protein supplement even though "APF" concentrates are used. In addition, dried whey, dried brewers' yeast, fermentation products, or distillers' dried solubles should be incorporated in these rations to supply the unidentified factors. Laying rations for market egg production and growing rations require no special supplementation.

TURKEY GOBBLES

Treatment for sinusitis in turkey with 4% silver nitrate solution is reported as being effective by the Illinois University, while other solutions, such as argyrol, sodium sulfamerazine, and potassium permanganate were not satisfactory. One Maryland grower uses two syringes in treatments. One syringe is used to draw off the accumulated fluid from the sinus, the other to inject the silver nitrate solution. This method is reported as quite effective and fast. Sinusitis is apparently caused by a virus.

—o—

Two or even four inch boards are fast replacing the narrow slats in pens for raising turkeys in confinement. The wider boards reduce bumblefoot and breast blisters.

—o—

Turkeys contain an average of 76.97% edible meat of total cooked weight and capons 75.14% according to Ontario Agricultural College investigations.

—o—

Moving turkey feeders on range the length of the feeders each day, and moving shelters and roosts every three or four days, is the best way to spread the droppings uniformly, reduce contamination, and preserve the stand of forage. A quick hitch for the tractor does the trick.

—o—

Brooding poults in a single large brooder house beats colony brooding all hollow when it comes to comparing the job done with labor involved.

—o—

A study of turkey costs by the University of Illinois in 1947 showed an average feed intake of 108 lbs. per bird consisting of 10 lbs. starter, 28 lbs. grower, 36 lbs. corn, 21 lbs. oats, and 13 lbs. protein supplement. A three year study showed feed to be 71% of gross costs of production, poults 11%, and labor only 8%. The neet cost of keeping a breeding heen for the '47 breeding season was $7.37.

—o—

Turkeys do well on a high level of alfalfa (5-10%) in the feed.

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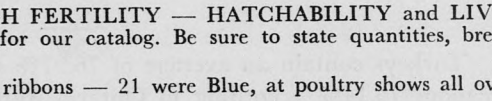

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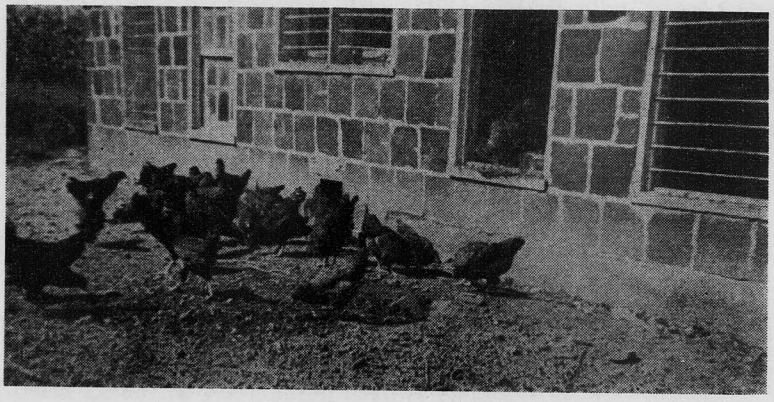
Junior Section

MY 4-H POULTRY ACHIEVEMENTS

By ROBERT LEITER

Route 5, Hagerstown, Maryland



During the summer of 1944, I joined the Smithsburg Boys' 4-H Club. My first project was raising a baby beef calf. Then, because of my local leader's influence and conditions at home, I started raising poultry. My first poultry project was started in April, 1946, with two hundred New Hampshire Red chicks. The cockerels were sold as broilers and the pullets were moved to the laying house just before they started to lay. These hens proved to be good layers and the majority were kept for the second year.

On February 27, 1947, I started two hundred Red Rock chicks. These chicks were of the super grade, as I had found from previous family experiences in raising poultry that it pays to buy better quality chicks. The Red Rock is a cross between the New Hampshire Red and the Barred Rock. I was very anxious to see what the grown birds would look like. A few of the birds were practically all black, but most of them were of a mixture of black, brown, orange, and yellow feathers, with black predominating. One of the features I liked about this particular breed is that they are very easy to clean when dressing; however, they did not surpass the New Hampshires in laying ability and cannot be exhibited at some poultry shows, as there is no class for cross breeds.

As part of my poultry project work, I gave a demonstration at Timonium State Fair in 1947 with John Stouffer. We chose "Culling the Farm Flock" for our demonstration, as culling is essential if the poultry producer is to cut feed costs, increase floor space, save labor, and increase egg production.

On April 28, 1948, I started two hundred New Hampshire Red chicks. The cockerels were sold as broilers and the pullets were moved to the laying house in July, leaving the brooder house empty. During the first August, I bought one hundred White Leghorn sexed pullets. This was my first experience with late

(Continued on Page 64)

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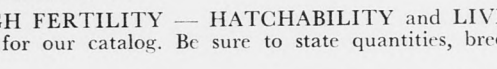

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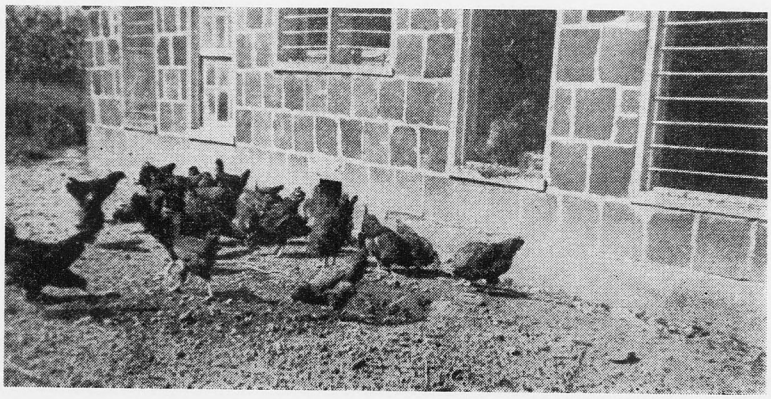

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(Continued on Page 64)

summer chicks. They did very well and began laying at 21 weeks. Leghorns are very good layers, but they offer very little value when they have to be sold. Within a year, these pullets had paid their initial cost of raising them to maturity and had earned a $115 profit.

A poultry project is a very worthwhile enterprise for any 4-H member who likes chickens. The project can be quite profitable, and at the same time, you can receive satisfaction through your work and keep your home supplied with poultry products. My poultry project has helped to finance my way through Hagerstown Junior College and now at the University of Maryland, where I am studying Agriculture.

POULTRY AN IDEAL PROJECT FOR A MARYLAND 4-H CLUB MEMBER

By MYLO S. DOWNEY

State 4-H Boys' Club Leader

Poultry club work ranks high on the list of 4-H Club projects in Maryland. There was a total of 1552 4-H Club boys and girls enrolled in poultry work in 1949.

These club members were enrolled in various projects. Those recommended to Maryland youth are:

Broiler Production — a club member starts with 50 or more healthy baby chicks of a dual-purpose breed and produces market chickens weighing 2 to 3 pounds at 8 to 10 weeks of age. A good short-time project.

Laying Flock — begin with at least 50 baby chicks or 15 or more pullets of a good laying strain producing eggs for market. A type of project providing a fairly regular cash return.

Breeding Flock — produce and maintain a flock of known ancestry for the purpose of supplying quality hatching eggs.

Other Poultry — where home situation and market opportunities warrant, some club members may engage profitably in duck or turkey production.

Where home conditions and facilities permit, individual ownership is the most desirable. In this way the club members enjoy the pride of ownership, he learns the importance of good records and sound business methods, he knows what is meant by a regular responsibility.

Some of the larger projects are in partnership with the club members' parents. This develops good father-son and mother-daughter relationship and helps supplement the farm family income.

Club members gain valuable experience through their club meetings by

making talks, leading discussions, presiding at business sessions, giving demonstrations and putting on exhibits.

The 4-H poultry club program is enriched by numerous county, state and interstate 4-H Club activities.

A State poultry demonstration contest was held at the Maryland State Fair. The winning team later represented Maryland at the Neppco Contest at Harrisburg, Pa. The team members were James Welling and Gerald Frathman of Sykesville, Howard County.

Poultry judging was emphasized by the State poultry judging contest held at the University of Maryland the latter part of October. The high scoring individuals were namely:

Ronald Graybeal, Colora, Cecil County
Jack Goette, Reisterstown, Baltimore County
Everett Hughes, Parsonburg, Wicomico County
Kent Mayne, Rockville, R 4, Montgomery County

These club members will comprise the Maryland team to compete in an interstate contest in Boston, January 1950.

Robert Leiter, of Washington County climaxed his 4-H poultry club career by winning the State trip to the National 4-H Club Congress.

The poultry project fits in on most Maryland farms and provides a quick return on money invested. It gives a regular weekly income to many Maryland youth. Poultry has provided a "go to college" fund for many Maryland young people.

DISEASE NOTES

Certain sulfa drugs (sulfamerazine, sulfadiazine, or sulfaguanidine) have proved effective in reducing chick losses in pullorum disease outbreaks, but will not remove pullorum infection in hens according to R. K. Cole's work at Cornell University.

—o—

Medicating water of chicks often reduces the water consumpton. Why? Chickens can detect presence of acids and other agents in the water.

—o—

Liming the litter proved no more effective in preventing coccidiosis than using deep litter in experiments at Ohio State Vet. College.

—o—

Strains of pullorum salmonella (pullorum disease organism) of a variant type now found in many areas require testing with both standard and polyvalent antigens to identify carrier birds in infected flocks.

—o—

Dr. W. A. Billings, Minnesota, says, "Yes, we will always have diseases in chickens, but we are learning how to control or live with them in comparative security."

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Breeder of PULLORUM CLEAN MD. U.S. APROVED NEW HAMPSHIRES

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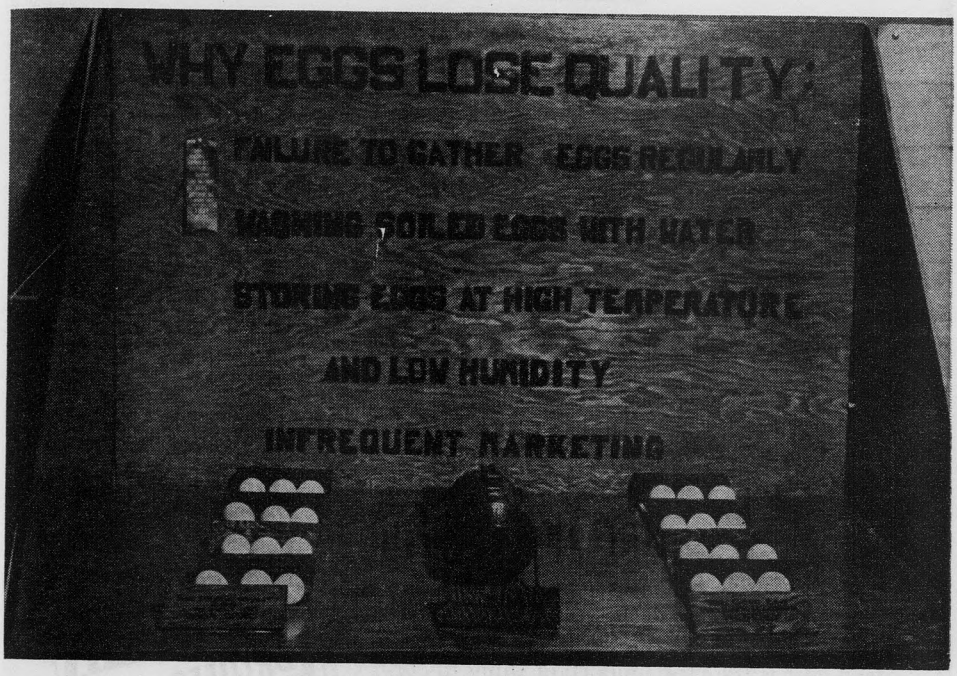
By WADE H. RICE
Extension Poultry Husbandryman


WHY EGGS LOSE QUALITY:
FAILURE TO GATHER EGGS REGULARLY
WASHING SOILED EGGS WITH WATER
STORING EGGS AT HIGH TEMPERATURE
AND LOW HUMIDITY
INFREQUENT MARKETING

An Excellent Miniature Exhibit

Miniature educational exhibits have been staged by 4-H Club and F. F. A. students in poultry at the Maryland Poultry Products Show in Baltimore, Hagerstown Fair, and other occasions in recent years where they attracted considerable attention.

These exhibits offer much more in the way of possibilities than one may at first realize and are worthy of much more attention and emphasis by Assistant County Agents, Vocational Agriculture Teachers, and other leaders of junior poultry activities.

The size of the exhibit pictured above is — 3 ft. front to rear, 4 ft. wide, and backboard 30 inches high. Plywood or other rigid wall covering makes for good construction so that it can be transported from classroom or headquarters to place of display.

Clubs or chapters can stage competitive exhibits as has been done on some past occasions, either on a county, sectional, or state-wide basis; or, members of a class can stage a competition among individual members.

There are a variety of subjects which are suitable for treatment in such exhibits; combining placards, photos, models, and the actual material. Placards

(Continued on Page 90)

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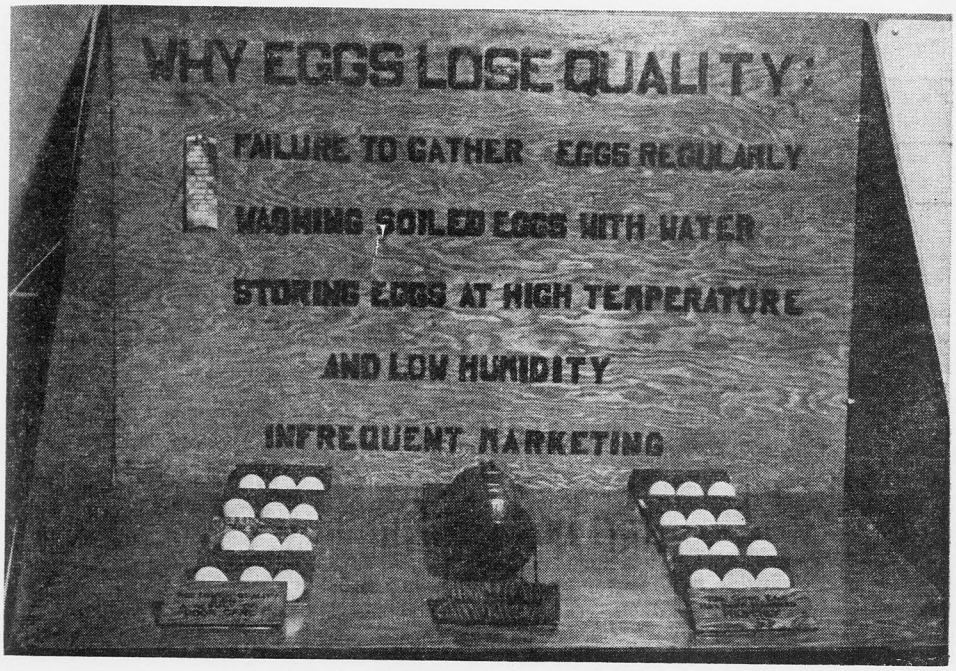
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STORING EGGS AT HIGH TEMPERATURE
AND LOW HUMIDITY
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The size of the exhibit pictured above is — 3 ft. front to rear, 4 ft. wide, and backboard 30 inches high. Plywood or other rigid wall covering makes for good construction so that it can be transported from classroom or headquarters to place of display.

Clubs or chapters can stage competitive exhibits as has been done on some past occasions, either on a county, sectional, or state-wide basis; or, members of a class can stage a competition among individual members.

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(Continued on Page 90)

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Springfield, Ohio

Economics and Marketing Section

COLLEGE FEED SURVEY COMMITTEE CALCULATIONS FOR 1949-50

Meeting in Chicago on October 20-21, under auspices of the American Feed Manufacturers' Association, twenty-three representatives of Agricultural Colleges in the Poultry, Livestock, and Dairy fields calculated probable feed usage in these fields for the feed year October 1, 1949, to October 1, 1950. The estimates of the Committee are summarized herewith:

FEED SUPPLIES

The supplies of available grains and mill feeds, particularly corn, are so large as to encourage increased production of meat, milk, and eggs, in spite of the prospect of somewhat less favorable feeding ratios. About 128 million tons of all feeds are expected to be fed in the United States. Total supplies of grains, grain by-products, and protein feeds available for feed, less anticipated exports and normal end of season carryover are calculated at 142 million tons, leaving an excess of 14 million tons of grains for carryover or export which is not in sight.

Swine — 8% increase in 1950 spring pigs over 1949 or 64 million head, and a 12% increase in 1949 fall pigs over 1948 or 38 million head. Average slaughter weight of 241 lbs. for 1949-50 marketings is anticipated.

Beef — A slight increase in calves and steers fattened of about 1¼% and a smaller increase in replacements on range is anticipated.

Sheep and Lambs — A reduction of about 2% in lambs slaughtered and a like increase in ewe lambs kept for replacements.

Dairy — Downward trend in number of dairy cattle has been checked and trend is now slightly upward. About 1% increase in milk production is anticipated.

POULTRY

Layers — 434 million layers or about 5% more than on January 1, 1949, are anticipated for January 1, 1950. This is due to favorable 1949 egg prices and the larger than usual number of pullets raised in 1949, together with increased feed supplies.

Farm Chickens — A 5½% increase or 790 million farm chickens are anticipated for the feeding year, due principally to plentiful grain supplies on farms and continued relatively high prices for red meats.

Commercial Broilers — Increased egg supplies and larger feed supplies, together with continued relatively short supplies of red meats, favor a further increase in broiler production according to the seasonal pattern. A production of 433 million head is anticipated or about 2½% increase over the preceding feeding year.

Turkeys — For the same reasons favoring an increase in broiler and farm chickens, an increase of about 1% in turkey production is anticipated for the 1949-50 feeding year. (Wade H. Rice)

POULTRY COMMITTEE

E. D. Parnell — Texas A. & M.; E. W. Bell, University of Massachusetts; E. W. Callenbach — Penn State; F. E. Mussehl — University of Nebraska; C. W. Upp — La. State University; W. H. Rice — University of Maryland.

Westminster Cooperative Poultry Products Auction, Incorporated

GEORGE C. BROWN, Manager

AUCTIONS

EGGS MON., THURS. 1:30

POULTRY TUES. 11:30

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DRESSED POULTRY POSSIBILITIES FOR MARYLAND POULTRYMEN

By JAMES M. GWIN

The marketing of dressed poultry by producers is increasing in Maryland, especially on the Western Shore. The reason is mainly one of lower dressing costs resulting from the development of poultry pickers and more suitable semi-scalding equipment which enables poultrymen to home-dress chickens and turkeys more quickly and more efficiently.

In many cases, Maryland poultrymen dispose of excess poultry from their laying flocks through the live poultry market. The price they receive is relatively low because poultry moving in this way normally passes from the dresser to the wholesaler and on to the retailer before it finally reaches the ultimate consumer. The services performed by each of these agencies must be paid for with money that comes from the difference between the retail price and the amount paid the producer. These are logical and proper expenses, but they are of necessity costly ones that range from approximately ten to twenty cents per pound, depending upon volume, type of outlet, condition of birds, and other similar factors.

There are several types of dressed poultry outlets open to Maryland poultrymen. The wholesale market is one that will handle dressed poultry in volume. In most cases, wholesalers are quite exacting in their grade requirements. They want the birds well pinned, and each delivery must be uniformly dressed, and in no case, may the birds be over-scalded. The price they must allow for the handling cost and a reasonable margin of profit.

Sales of dressed birds in lots of a dozen or so to consumers who have freezer locker space or home freezers offer excellent outlets to poultrymen. In most cases, the price is a compromise between the wholesale and retail quotation which offers a mutual advantage to both parties involved.

Sales of individual birds direct to consumers usually produce the highest gross return, but they also involve maximum marketing costs as well as the consumption of a great amount of the poultryman's time—time that may be used profitably in producing additional poultry and eggs.

Before venturing heavily into a dressed poultry project, it is well for the poultryman to give proper consideration to his location in relation to available markets and his ability to serve his market throughout the entire year so that he can capitalize to the fullest on the market outlets he builds. He must also consider his ability and desire to merchandise his product through retail channels.

If his analysis indicates that he has the potential market, a steady source of supply, and a true desire to retail his poultry, he is offered the possibility of expanding his poultry business without the expenditure of a very large additional amount of money.

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DRESSING POULTRY FOR THE CONSUMER

By ARTHUR F. MARTIN

Supervising Inspector, Maryland Department of Markets

Consumers determine the volume of poultry sold. This volume is controlled largely by the consumer's income and the appearance, quality, and flavor of the product. Maryland producers and the Maryland Poultry Industry should see that their poultry reaches the consumer in an attractive and palatable condition.

Some of the factors that affect the appearance and palatableness of poultry when it arrives on the market are: quality of the bird, cleanness, flesh and skin bruises, abrasions (skin barking) and discolorations, and visceral taint. There should be sanitary dressing equipment and facilities. Poultry should be properly killed, chilled, graded and packed.

Special surveys show that most bruises on poultry are acquired during the catching operation on the farm and by further handling up to the time the bird is completely bled. Bruised birds are not attractive to consumers. This can only be overcome by careful handling.

Abrasions, skin barking, and discolorations are usually acquired during the dressed operation and the chief causes are mechanical pickers, roughers and too hot scalding water. These abrasions, or skin barking, usually turn brown and the poultry becomes unattractive by the time it reaches the consumer. This can be controlled by lowering the scalding water temperature to somewhere below 130° F. and by skillful operation of the mechanical pickers.

Visceral taint is that undesirable flavor that is found when the viscera has been left in the bird too long and under unfavorable conditions. Much more poultry would be consumed if it was marketed without visceral taint. This can be done best by drawing poultry as soon as the feathers are off and then chilling or by chilling poultry rapidly and drawing promptly. Birds frozen promptly, defrosted and drawn immediately, can be kept practically free of taint.

A point of major importance is sanitary dressing equipment and facilities. Dirty equipment is loaded with bacteria. Poultry is a highly perishable product and high bacteria causes it to deteriorate faster and to become slippery, slimy and unsalable.

Fast chilling, which is proper chilling, is very essential. The length of time the poultry will keep, and the appearance of it, are partly determined by how fast it was cooled. Chilling is usually done by two methods, dry refrigeration and wet chilling. Most poultry is wet chilled with ice water for economy. The water should be between 33° and 35° F. at all times.

It is impossible to cover all factors concerning the dressing and preparing poultry for the consumer in the space allotted, but there is one process that should be watched closely and that is the cut-up, ready to cook poultry. This type of poultry is becoming more popular every day, but the demand for same can be ruined by unscrupulous processors and dealers. The more poultry is cut up or processed, the harder it is to tell the true quality. There is plenty of chance for misrepresentation.

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A Quality Mash For Every Need

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Hagerstown, Maryland

THE END OF THE DETOUR

By RUSSELL C. HAWES
Marketing Specialist, University of Maryland

The main highway has been reached. There is a long line of traffic. Horns are blowing. People are on the right road and going places. Are you going to move yourself into this line systematically or stall, wait or turn backwards? Remember, business never stands still. You have an important and quick decision to make. Are you going to unite with those progressive, quality-minded merchandising travelers as they ride along on the main highway to success, or to be indecisive, timid and fail to grasp the opportunity as presented? This decision is yours, and yours alone. Let's assume you quickly size up the situation, aline yourself in the right direction, and move forward—business never stands still.

This means quality production, quality handling, and quality merchandising. All this at a time when you have more to sell and at a time when it is important you sell more. Quality is a "must", highly important with present high costs, and the possibility of higher taxes. It is paramount that eggs be sold on quality. Eggs of the better grades always pay dividends. One only has to follow daily market quotations to ascertain the premiums paid for eggs of quality. Most layers produce eggs of quality. It is your duty to maintain this quality — right through 'til the product leaves your hands. In a recent study, it was found that one-third of the eggs handled at country stores and buying stations were below "A" quality on the day of receipt from producers. This means a better job must be done by all producers striving to increase their income and to supply our more exacting consumers with a superb product.

In order for your eggs to be received by the ultimate consumer, care must be exercised throughout the entire length of the marketing chain. Studies show quality is lost, in varying degrees, after the eggs leave the producers' hands. This points to the further need of exacting care by the producers. The higher the quality is at the time of leaving the producers' hands, the higher the quality will be at the time of delivery to the consumer. Assembly plants, processing plants, shippers, graders, and retailers are doing everything possible to deliver to the consumer your product in the best condition. They cannot improve on the quality as received from you. They only can maintain it in as far as it is humanly possible.

Why all this talk of quality and the proper care of eggs on the farm? Quality production means higher returns. Egg producers oftentimes have wondered at the price spread between producers and consumers. The loss of quality which occurs as the eggs move through marketing channels contributes greatly to this problem. The economic importance of this problem cannot be overemphasized. The loss is immense. Top-quality eggs always sell at a higher price and give greater satisfaction. Your competition comes from eggs of the lower qualities. To obtain the greatest amount of money for your efforts, take proper care of your eggs. It pays.

Maryland Poultry Statistics

TABLE I — NO. OF LAYERS AND EGG PRODUCTION BY MONTHS
UNITED STATES — 1948 — 1949 (to Nov. 1)

	No. of layers on hand during Jan. Thousands		Eggs Produced per 100 layers during the mo.		Total Production Total Eggs Million	Pro. Dozens
	1948	1949	1948	1949	1948	1948
January	388,227	377,344	1,112	1,210	4,318	4,567
February	378,715	367,069	1,243	1,312	4,707	4,815
March	364,810	357,269	1,665	1,718	6,074	6,137
April	347,796	339,629	1,806	1,798	6,280	6,105
May	328,531	321,897	1,817	1,816	5,969	5,845
June	310,300	305,776	1,612	1,604	5,002	4,905
July	292,795	291,393	1,515	1,487	4,435	4,334
August	285,589	286,329	1,368	1,346	3,906	3,853
September	305,070	308,845	1,153	1,156	3,516	3,576
October	339,896	348,083	1,029	1,077	3,497	3,749
November	364,748		948		3,456	
December	376,449		1,065		4,041	
Total for year					55,452	

TABLE 2 — CHICKENS AND EGGS

Hens and Pullets, Rate of Lay and Egg Production, Maryland, 1939-1948.*

	NUMBER OF LAYERS		RATE OF LAY		Eggs
	Hens and Pullets Jan. 1	Ave. Layers during year	Per layer Jan. 1	Per layer during year	Produced during year
YEAR	(000)	(000)	Number		Millions
1939	3,336	2,581	110	143	368
1940	3,444	2,671	110	142	379
1941	3,309	2,608	113	143	373
1942	3,710	2,954	114	143	422
1943	4,002	3,070	111	144	443
1944	4,463	3,385	113	149	505
1945	4,149	3,227	118	152	490
1946	4,188	3,240	122	157	509
1947	3,392	3,160	126	156	494
1948 0/	3,879	3,106	129	161	501

*Source: Bureau of Agricultural Economics, United States Department of Agriculture. 0/ Preliminary.

Maryland Poultry Statistics

TABLE 3 — TURKEYS

Farm Production, Disposition and Income, Maryland, 1939-1948.*

YEAR	All turkeys produced on farms		Turkeys consumed on farms			Turkeys sold	
	Number	Value	Number	Value		Number	Value
	(000)	(000) Dollars	(000)	(000)	Dollars	(000)	(000) Dollars
1939	397	1,266	18	57		357	1,139
1940	409	1,262	16	49		412	1,271
1941	401	1,570	16	63		384	1,503
1942	400	2,118	11	58		397	2,101
1943	360	2,157	12	72		357	2,138
1944	423	2,822	10	67		402	2,682
1945	485	3,287	12	81		462	3,131
1946	462	3,460	14	105		460	3,445
1947	393	2,996	15	111		390	2,885
1948 2/	318	3,057	17	162		304	2,895
1949 2/	417						

*Source: Bureau of Agricultural Economics United States Department of Agriculture. 1/ Turkeys sold plus turkeys consumed on farms plus or minus change in inventory. 2/ Preliminary.

TABLE 4 — TURKEYS

Number and Value on Farms, Maryland, January 1, 1939-1949*.

YEAR	TURKEYS ON FARM JANUARY 1		
	Number	Value per Head	Total Value
	(000)	Dollars	(000) Dollars
1939	74	3.40	252
1940	96	2.90	278
1941	77	2.95	227
1942	78	3.70	289
1943	70	5.50	385
1944	61	6.10	372
1945	72	7.00	504
1946	83	6.90	573
1947	71	7.00	497
1948	59	8.00	472
1949 1/	56	10.00	560

*Source: Bureau of Agriculture Economics, United States Department of Agriculture. 1/ Preliminary.

Sawdust with a little dry soil mixed with it makes a good nesting material for turkey nests. It will greatly reduce breakage as compared to other litters.

—o—

For more eggs per turkey hen, remove setters every day. Broody hens don't eat, and the longer they set the further out of laying condition they become.

—o—

Penn State studies show that turkey eggs one to seven days old hatched 4½% better than eggs eight to fourteen days old.

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VINELAND POULTRY LABORATORIES

VINELAND — NEW JERSEY

Maryland Poultry Statistics

TABLE 5 — COMMERCIAL BROILERS

1/ Production, Price and Income, Maryland, 1939-1948*

	Number and Weight produced		Price per lb.	Gross Income
	Number	Pounds	Cents	Dollars
YEAR	(000)	(000)		(000)
1939	7,000	21,000	16.4	3,444
1940	15,000	45,000	16.0	7,200
1941	23,000	69,000	17.6	12,144
1942	28,000	92,400	22.3	20,605
1943	34,000	108,800	28.3	30,790
1944	30,000	96,000	27.6	26,496
1945	39,000	127,680	28.1	35,878
1946	31,122	99,590	30.1	29,977
1947	34,444	110,221	29.7	32,736
1948 2/	38,233	122,346	34.7	42,454

*Source: Bureau of Agricultural Economics, United States Department of Agriculture.
1/ See footnote under Table 45, Bulletin X3.
2/ Preliminary.

BROILER CHICKS PLACED AND BROILERS MARKETED IN 1949

To Nov. 1 in — Delmarva Area

	Thousands Chicks placed	Thousands Marketed			
AprilJanuary	13,107	9,246	August	9,927	10,664
February	11,810	9,149	September	11,467	9,974
March	13,236	10,983	October	13,494	10,079
April	12,334	10,765	November		
May	13,145	11,913	December		
June	12,301	12,916			
July	8,629	10,801	TOTAL	119,450	106,490

Johnny Huttar of G. L. F. says that a choice between different feeds, house ventilation, sanitation, and marketing methods may make a difference of 10% in total income, but a choice between fair and good breeding of the chicks bought (av. 150 eggs vs. 200 eggs per bird) means 33% more income.

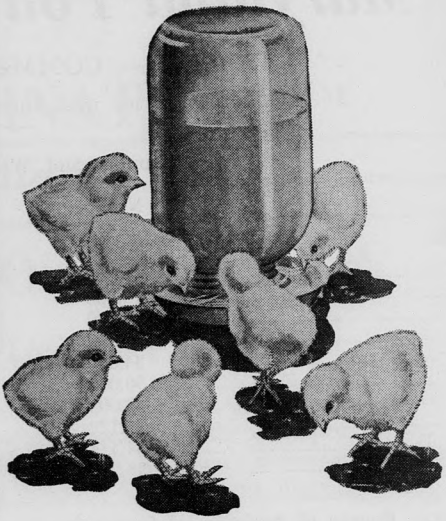
—o—

The problem of home picking of water fowl is occasionally raised as a problem. Here's one method that works: — After killing, place in cold water to chill the carcass. Allow at least ½ hour or longer in cold water; then, scald and pick when it is as hot as you can handle.

—o—

Weed killers, such as 2,4-D, Ammate, and 2,4,5-T. tested at the West Virginia Station produced no ill effects on birds when used on ranges followed by pullets using the range, or when 2,4-D was mixed in the feed for pullets.

GS (Growth Stimulation) factor of



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Gain Weight Quicker

Lay Eggs Earlier

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Larger doses prevent the spread of cecal coccidiosis. Costs about 1c per bird treated. Tablets for drinking water or powder for feed. Buy today.

Other Helpful Products

- **Dr. Salsbury's Sulquin**
  Liquid or powder. Contains Sulfaquinoxaline. Checks immediate mortality from acute fowl cholera. Prevents and controls coccidiosis (all forms).
- **Dr. Salsbury's Wormix**
  Flock treatment for large roundworms and cecal worms. Easily, quickly used.
- **Dr. Salsbury's Cloro-Caps**
  Individual treatment for tapeworms (Genus Raillientina), large roundworms and cecal worms.
- **Dr. Salsbury's Rota-Caps**
  Individual treatment — large roundworms and intestinal capillaria worms. Won't knock egg production.

When you need poultry medicines, ask for

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Charles City, Iowa

Dr. SALSBURY'S

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BROILER RATION

3 lb. birds in 9 weeks. 1 lb. of weight for 2.85 lbs. of MA-CO. We're talking *facts* as given us by other broiler growers who changed to MA-CO. Your time is money . . . make it earn.

Call Your B-B Feed Dealer

Maritime Milling Co., Inc.
BUFFALO, N.Y.

Disease Control Section

BROILER DISEASE TROUBLES

By I. M. MOULTHROP
Livestock Sanitary Service Laboratory, Salisbury, Maryland

There are many disease problems facing the Broiler producer on the Del-MarVa Peninsula that need to be answered, some very pertinent.

Many of these problems are seasonal and can be worked upon only at different seasons of the year. Newcastle disease is one of these conditions.

During the past summer, Newcastle disease vaccination was very successful. Both the Live and the Killed vaccines worked quite well. I might also say that many unvaccinated flocks came through very nicely with little, if any, trouble.

At the beginning of the winter season, one sees a change in the vaccination picture as well as in the unvaccinated flock. The virulence of the virus seems to increase under the more severe weather on the DelMarVa peninsula. Unvaccinated flocks are being hit rather severely by this virus with some flocks experiencing mortalities up to 20 to 30% which has been the experience in years past.

Those flocks vaccinated with the live vaccines are also experiencing more post-vaccinal reaction than in the summer. The vaccinated birds show more severe respiratory symptoms than in the summer and the following cases of paralysis are greater. One is led to believe that the present live vaccines are rather severe for our young birds, that is the Broiler.

The killed vaccines seemed to be the entire answer to the Newcastle disease vaccination problem especially in the summer season since there was no apparent post-vaccinal reaction. However, here again difficulties seem to be cropping up, that is flocks that are apparently coming down with Newcastle disease. Some flocks have been checked and found that vaccinated chicks were infected with the Newcastle disease virus. This presents the big problem to be answered. Are the birds developing sufficient protection? Time will soon tell.

It seems to one working with the before mentioned types of flocks that different vaccines must be developed to give the poultry grower a more efficient and less severe type of protection.

Another very serious hazard to the Broiler grower is Fowl Typhoid. This disease is making its appearance in our laboratory more and more frequently this fall causing serious losses to the producer. It is a disease that does not have a definite course like Newcastle disease, Infectious Laryngo-tracheitis, Fowl Pox and the like, since the losses go on indefinitely usually until the flock can be salvaged by slaughter. The slaughter should be in plants under government inspection to insure the purchasing housewife a wholesome dressed chicken.

The various sulfa drugs have beeen very beneficial to the flock infected with Fowl Typhoid but these drugs are costly and must be repeated at frequent intervals. If the broiler flock was small, one could probably treat the sick flock,

(Continued on Page 89)

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remove all affected birds, clean and disinfect thoroughly, and halt the spread of this disease but this is an impossibility on the average broiler plant which is a very large one man operation.

One of these days in the not too distant future, it is planned by the University of Maryland to have space on the Eastern Shore in the heart of the Broiler country for working on these troubles together with many others of equal or greater importance. It is the desire of all connected with the industry to find quick, efficient, and economical methods for the control of these problems in due time. While it is very disturbing to face all these problems with, at times only limited knowledge, it seems to be one of the stumbling blocks of progress. It is a fact that trouble progresses faster than methods of control in disease of both man and beast . . . ..

DIAGNOSING RESPIRATORY DISEASES IN CHICKENS

By H. M. DeVOLT
Livestock Sanitary Service, College Park, Maryland

The appearance of Newcastle disease in poultry flocks of this country has increased the serious ailments with which the poultryman is forced to contend. Newcastle, by exhibiting in part symptoms of difficult breathing, has added one more to the list of respiratory diseases that must be distinguished, one from the other. The advent of vaccines for the purpose of creating immunity has accentuated the need for accurate diagnosis on the basis of which the correct vaccine must be selected.

Newcastle is prevalent in newly hatched, growing, and adult chickens in certain parts of the United States. In addition to difficult breathing, the disease manifests itself in laying flocks by sudden onset and rapid drop in egg production. Usually a greenish yellow diarrhea is in evidence. The whole flock assumes a dejected attitude within a few hours or days. Misshapen and bleached eggs may be in evidence. Later in the course of the disease certain birds exhibit nervous symptoms. The head may be thrust down between the feet or turned over to one side. There may be paralysis of a wing or leg. The appearance of a rapidly spreading respiratory ailment complicated by nervous symptoms is highly suggestive of Newcastle and may serve as a practical basis for diagnosis. The presence of the disease can be determined with certainty, however, by identifying so-called antibodies in the blood. This is accomplished by rather complicated tests conducted in the laboratory. While not entirely removed from experimental stages, Newcastle vaccine applied in the wing-web (patagium) promises to place this dreaded malady under control.

Infectious laryngotracheitis may be confused with Newcastle. Both ailments are caused by a filterable virus. The two viruses, however, belong to separate species. Both ailments cause labored breathing; but laryngotracheitis, as a rule, causes more violent coughing and sneezing and hitherto, in this country, a higher death rate. In some foreign countries Newcastle has caused a high death rate and may become more serious in this country. Laryngotracheitis is more common in adult fowls, while Newcastle is common in chickens of all ages. Laryngotracheitis is

(Continued on Next Page)

confined to the windpipe and causes death by suffocation, while Newcastle affects the whole body. Laryngotracheitis has been placed under control by the application of laryngotracheitis vaccine to the mucous membrane of the vent. It is diagnosed in the laboratory by the cross inoculation of immune and susceptible experimental birds.

Infectious bronchitis is another respiratory disease of chickens that may be confused with Newcastle. This latter ailment is most severe in young chickens. It appears in a rather mild form in adult birds. Like laryngotracheitis, this ailment can be identified in the laboratory by the cross inoculation of susceptible and immune birds. Unlike laryngotracheitis, there is not an immunizing vaccine on the market at present with which to combat the disease. In the experience of the writer, however, high levels of vitamin A in the ration are often a valuable aid to control.

In addition to the aforenamed ailments in birds of various ages, pullorum, infectious coryza, and fowl cholera may at times exhibit symptoms of difficult breathing. These ailments are diagnosed by bacteriological methods and respond in varying degrees to treatment with the so-called sulfa drugs.

Thus the application of blood tests, cross inoculation tests, and bacteriological methods all have a place in the differential diagnosis of respiratory ailments and allied conditions of fowls. These diseases can be brought under control only by the application of effective control measures based on accurate diagnosis.

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and photos should be used sparingly and only to connect the theme of the idea demonstrated. Models or the actual materials involved in the demonstration idea are always best to use.

In addition to the idea used in the above illustration, other suitable ideas are:

> Producing clean eggs; sanitation in the poultry house; testing for Pullorum disease; culling the laying flock; artifiical lights increase fall egg production; advantages of a range shelter; economical poultry feeder; a non-freeze water fountain, and many others.

These exhibits are easy to construct, afford an ideal opportunity for junior poultrymen to study subject matter effectively and thereby increase their practical knowledge of the subject, and therefore provides an excellent work project.

The exhibits are suitable for displaying at meetings, contests, field days, community shows, fairs, in local bank windows, store windows, and other uses and occasions.

Where contests are staged between individuals or clubs or chapters, the following score card may be used to judge the exhibits:

1. Merit and practicality of practice selected 25
2. Completeness and originality of treatment of subject 25
3. Attractiveness and neatness of exhibit 20
4. Clarity and effectiveness of exhibit 30

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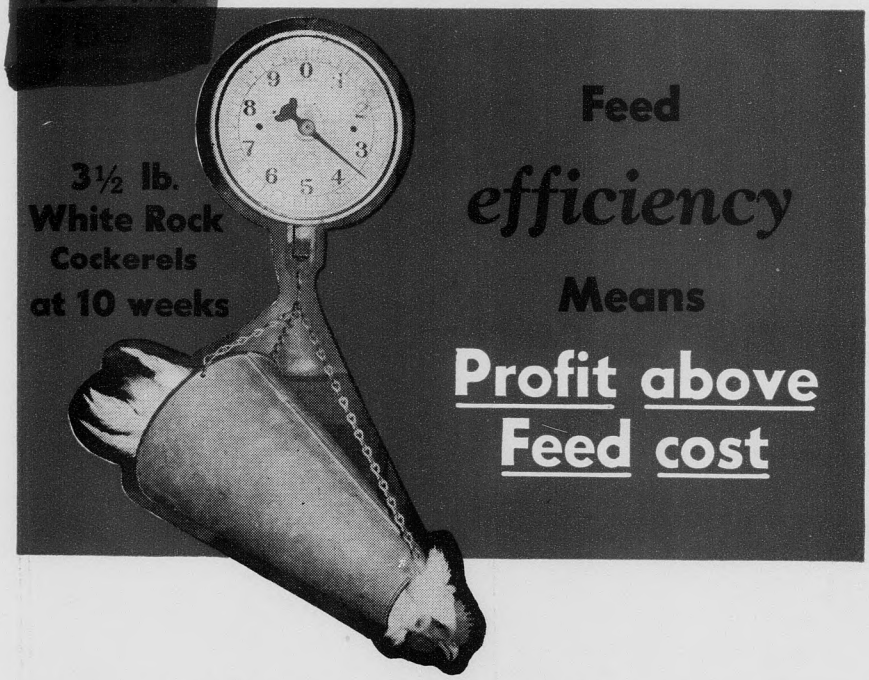

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